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VISUAL REQUIREMENT IN THE PUBLIC SERVICES OF THE UNITED STATES *

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I invite your attention to the consideration of the visual standards in the public services of the United States, the subject concerning which I have chosen to address you this afternoon. It occurred to me that it might be well to collate all the laws which the government has enacted regarding the visual requirements of those engaged in its public services. I was aware that this information had never been collected and placed in a readily accessible form, as I had frequently myself had difficulty in ascertaining what the standards of vision were, which governed the admission of cadets into our naval and military academies, or regulated the granting of licenses to pilots.

With this idea in mind, and with the intention of laying the entire subject before the Section at this meeting, I devoted myself to the acquisition of as much information regarding the matter as was possible, and in addition to studying the conditions at home, communicated with foreign governments through the cooperation of our embassies, and obtained from Great Britain, Germany and France, the visual standards which these countries enforce in their various services.

With the data of these investigations at hand and with all the information on the subject which I could command, I determined before proposing any modifications or changes in existing standards to endeavor to elicit the aid and cooperation of the officers of the various branches of the public services themselves, realizing that while we, as practicing and scientific ophthalmologists, might be more familiar with certain phases of the subject, they for their part, by virtue of long experience, were better fitted than we to decide on certain points. With this end in view, I had an interview with the Surgeon-General of the Army, Dr. George H. Torney, and was much pleased to have not only his entire approval of my plan, but also his offer of full cooperation. Indeed, he suggested that I proceed at once to draft a new series of visual requirements for the Army, and that this revision of the standards might be comprehensive and in a manner authoritative, he suggested that I associate with me the three ophthalmologic members of the Medical Reserve Corps of the Army, Drs. L. Webster Fox and George E. deSchweinitz, of Philadelphia, and Dr. Myles Standish, of Boston, nominating me also to a lieutenancy in the same Department. All three of these gentlemen expressing their willingness to cooperate, the Philadelphia members, Drs. Fox, de Schweinitz and myself, invited a number of army officers who were resident in Philadelphia at the time, and several prominent members of the Pennsylvania National Guard to meet us, for the purpose of obtaining from them their ideas regarding the degree of vision which was necessary for the proper performance of the duties of a soldier or officer in the various fields of army activity. The demands on sight in each corps of the army were considered very carefully and the views of all of the gentlemen present, who represented nearly all the departments of the army, were carefully noted.

The various communications on the subject which had been addressed to the War Department from time to time by officers and surgeons of the army, relative to vision were also studied, and mention must here be made of the indebtedness of the commission to the admirable report[1] of Lieut.-Col. J. M. Banister, and Major H. A. Shaw, made in October, 1909, from which much valuable information was obtained regarding the degree of vision necessary for the enlisted man.

The visual standards in operation in the armies of Great Britain, Germany and France were next studied and consideration given to the probable reasons for their variations from our standards. With this information drawn from such wide and varied sources at hand, the commission drafted a series of requirements of its own. These have received the approval of the Surgeon-General of the Army and will shortly be submitted by him to the general staff for adoption.

PRESENT REQUIREMENTS IN THE ARMY

The present requirements, with dates of adoption for the various corps and departments attached are as follows:

U. S. MILITARY ACADEMY—ADMISSION

"Vision, as determined by the official test-types, must not fall below 20/40 in either eye, and not below 20/20 unless the defect is a simple refractive error not hyperopia, is not due to ocular disease, and is entirely corrected by proper glasses.

"In the record of all examinations, the acuity of vision without glasses, and also with glasses when the acuity is less than 20/20, will be given for each eye separately; in the latter case the correction will also be noted.

"Hyperopia requiring any spherical correction, anisometropia, squint or muscular insufficiency, if marked, are causes for rejection.

"Color-blindness, red, green or violet, is cause for rejection."
G. O. 176, '06.

" . . . *In the examination of cadets*, except those on probation, discharge will not be recommended except for some cause which disqualifies for the duties of a cadet or is likely in the future to impair his efficiency as an officer of the Army.

* Chairman's address before the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, St. Louis, June 7-10, 1910.

* The length of this address made necessary its abbreviation in THE JOURNAL. The introductory remarks are omitted, in which Dr. Posey commented on some of the features of the program for this session. Some of the details of the descriptions of various visual tests are also omitted further on in the article. The complete text appears in the Transactions of the Section and in the author's reprints.

1. Circular No. 5, War Dept., Washington, Jan. 25, 1908.

Defects of vision, however, must in all cases be entirely corrected by glasses." G. O. 176, '06.

SECOND LIEUTENANT FROM CIVIL LIFE

The visual requirements are satisfied by a candidate who has "20/40 in either eye, or who is not color-blind for red, green or violet." G. O. 59, '08.

MEDICAL CORPS

"Errors of refraction, if not below 20/40 in either eye, are not cause for rejection, provided they are not accompanied by ocular disease and are entirely corrected by appropriate glasses."

HOSPITAL CORPS

"Applicants may be accepted with a vision of 20/70 in either eye, correctible to 20/40 with glasses, provided that no organic disease exists in either eye." G. O. 256, '07.

ENLISTED MEN OF THE LINE

Enlisted men of the line of the Army and of the Engineer and Signal Corps, a minimum of 20/40 for the better eye, and of 20/100 for the poorer, provided that no organic disease exists in either eye.

Enlisted men of the Ordinance, Subsistence and Quartermaster's Departments and for the Hospital Corps a minimum of 20/70 in each eye correctible to 20/40 with lenses, provided that no organic disease exists in either eye.

Recruits may be accepted for the line of the Army when unable with the better eye to recognize all of the letters on the 20/40 line, provided that they may be able to read some of the letters on the 20/30 line. Circulars 4 and 5, 1908.

Reference to the "better eye" in the preceding requirements indicates the right eye, it having been determined that shooting from the left shoulder is undesirable.

PROPOSED REQUIREMENTS

The proposed requirements which have been presented by the commission appointed by General Torney are as follows:

I. REQUIREMENTS IN THE U. S. MILITARY ACADEMY

For Entrance.—A minimum of 6/6 vision in each eye. If hypermetropia be present, as detected by the test lenses, a manifest of more than 1 D. will exclude. The muscle error at 6 meters shall not exceed a hyperphoria of 2°, an exophoria of 5°, or an esophoria of 8°. Color-blindness, red, green or violet, is cause for rejection.

For Graduation.—A minimum of 6/12 vision in one eye and and of 6/18 in the other, but capable of being corrected to 6/6 in each eye by proper lenses, is requisite.

ADDENDA

Examination shall be made of the eyes of all cadets at the commencement of each academic year and if at any time during the course vision is found to have deteriorated to a degree greater than is required at graduation, the cadet shall be dropped. When a refraction error exists, cadets shall be commanded to wear the glasses prescribed for them precisely as directed by the medical officer in charge.

II. SECOND LIEUTENANT FROM CIVIL LIFE

A minimum of 6/12 in one eye, and of 6/18 in the other, capable of correction in each to 6/6, and a normal color sense are requisite. The muscle error at 6 meters shall not exceed a hyperphoria of 2°, an exophoria of 5°, or an esophoria of 8°.

III. FOR PROMOTION

For advancement through the various grades short of that of major, uncorrected vision must equal at least 6/24 in one eye and 6/30 in the other, and corrected vision, 6/6 in one eye and 6/12 in the other. For promotion to the rank of major and all higher grades no definite visual standard is required. The eyes, however, shall be carefully examined in each case, and if in the opinion of the Examining Board their condition is such that they render the performance of the military duties peculiar to each rank impossible, the officer shall be recommended for retirement.

IV. MEDICAL CORPS

For Entrance.—A minimum of 6/18 is requisite in each eye, which is capable of improvement to 6/6.

For Promotion.—Uncorrected vision shall not fall below 6/30 in one eye and 6/60 in the other, and corrected vision shall equal 6/6 in one eye.

V. HOSPITAL CORPS

For entrance and promotion, a minimum of 6/21 is requisite in either eye, which is capable of improvement to 6/6 in one eye and at least 6/12 in the other.

VI. ENLISTED MEN OF THE LINE OF THE ARMY AND OF THE ENGINEER AND SIGNAL CORPS

A minimum of 6/12 for the better eye and of 6/30 for the poorer is requisite.

VII. ENLISTED MEN OF THE ORDNANCE, SUBSISTENCE AND QUARTERMASTER'S DEPARTMENTS AND OF THE HOSPITAL CORPS

A minimum of 6/21 for the better eye, and 6/30 for the poorer is requisite, correctable to 6/6 and 6/12, respectively.

OTHER CAUSES FOR REJECTION

Apart from the visual standards which have just been described, and the restrictions as to muscle error and defects in the color-sense imposed in certain branches of the service, the presence of any structural changes or inflammatory conditions of the eyeball or its adnexa, such as might lead to impairment of vision later, are causes for rejection in all departments of the Army. Candidates whose eyes present merely the results of former inflammatory processes, may be accepted, provided the eyes are entirely free from inflammation at the time of the examination, and that they possess the necessary degree of vision, and that the sequelæ of the previous inflammation have entailed no serious impairment in the structure of the eye or its adnexa.

DIRECTIONS FOR CARRYING OUT THE TESTS

In testing the degree of visual acuity and of the balance of the extraocular muscle, the candidate must be seated exactly at 6 meters from the charts and the light used in the muscle test, and this distance must never be varied. (Six meters shall be regarded as equivalent to 20 feet.)

For purposes of uniformity and to guard against the possibility of any deception on the part of the candidates, all tests shall be made with the standard charts issued by the department. These shall be exhibited to the candidate in a good natural or artificial light at a height of 4 or 5 feet from the ground. In the tests made at the Military Academy, the charts shall be illuminated by the Williams battery of electric globes, with daylight excluded from the room.

Each eye shall be tested separately and the examiner must exercise the greatest caution that the eye which is not under examination shall be properly excluded. During the performance of the test the lids must remain naturally open, squinting being prohibited. In the event that the candidate is unable to read all the letters on the line designated as his minimum vision, he will be passed, provided he is able to read three of the letters on the next smaller line with both eyes directed on the chart.

The manifest hypermetropia shall be detected by testing each eye separately, either by the so-called fogging system of first holding a + S. 3 D. or 4 D. lens before the eye and then gradually abstracting from its strength by holding — S. lenses before it until 6/6 vision is attained, or by beginning with a + S. 0.25 D. and gradually increasing the strength of the lens until the letters on the 6/6 line are no longer visible.

The muscles of candidates at the Military Academy and of second lieutenants from civil life shall be tested with the Maddox rod, and a set of prisms. Their color-sense shall be ascertained by the tagged Holmgren worsted test of Williams.

L. WEBSTER FOX,
GEORGE E. DE SCHWEINITZ,
MYLES STANDISH,
WILLIAM CAMPBELL POSEY, Chairman,
Lieutenants Medical Reserve Corps, Feb. 11, 1910.

. . . . . .

In our letter of explanation to the Surgeon-General, of the proposed standards and tests which we offered the commission wrote as follows:

The requirements at the Military Academy have been raised so that each candidate must have full visual acuity. This has been done for a variety of reasons. In the first place, it is believed that there will be no difficulty in obtaining a sufficient number of candidates from young men who possess full vision, as observation has shown that at least 65 per cent. of the young men who enter American colleges have normal sight in both eyes. If a lower degree of visual acuity is accepted, a number of candidates with myopia and astigmatism will be received into the department, whose sight will still further deteriorate under the strain of student life while they are in the Military Academy, as well as in the service later, as a consequence of the tax placed on the eyes by the increasing amount of study demanded of officers for promotion through the various grades. The elimination of candidates with high degrees of hypermetropia by the rejection of those possessing more than 1 D. of manifest hypermetropia, as well as of those with troublesome degrees of muscle errors, has been advised with a view to debarring from the service all who would be likely to suffer from eye-strain under the demands of prolonged study.

It has been deemed wise to establish a standard for graduation, in order that the department may have an authoritative basis for retiring a cadet when the eyes had deteriorated to such an extent that his usefulness as an officer might be curtailed, but the commission has purposely set the standard so low that only those whose eyes had deteriorated to an unusual degree would be debarred from graduation. It is believed that a minimum of 6/12 in one eye and of 6/18 in the other, capable of improvement in each eye to 6/6, will not exclude cadets who may develop the moderate amount of myopia which is natural at their age among all students employing their eyes under somewhat similar conditions.

It is advised that the medical officer in charge of the Academy should make ocular examinations of all the cadets at least once a year and should carefully test under atropin all those with symptoms of asthenopia or whose eyes manifest any tendency toward deterioration. Glasses should be worn constantly if judged necessary.

In order to avoid deception on the part of the candidates, it is recommended that the department prepare its own charts, on which such devices and letters may be figured as will not lend themselves to be easily learned by the candidates.

At West Point, where it is most desirable that all of the tests should be made under uniform conditions, a standard means of illuminating the test cards has been suggested, and the committee recommends that devised by Dr. Charles H. Williams, of Boston, for this purpose.

A candidate for a second lieutenancy from civil life is given the same visual requirements as obtain for graduates from the Military Academy.

Candidates for entrance into the Medical Corps are permitted to possess a somewhat lower degree of visual acuity than under the old standards, i. e., 6/18 instead of 6/12, while the same standard is maintained for the Hospital Corps, though improvement of the vision in one eye to normal is deemed requisite.

The former standard for enlisted men of the line of the Army has been maintained, as it is the opinion of the committee that while the possession of the minimum degree would be insufficient for sharpshooting and the performance of other duties which demand the sharpest vision, there would always be a sufficient number of candidates enlisting with normal vision from whom there would be no difficulty in securing soldiers who would be able to perform the duties demanding extraordinarily sharp vision.

It is not possible to dwell further at this time on the eyes of the soldier, but to those who may be surprised at the comparatively low standard which has been set for the enlisted man, it may be said that modern warfare has abolished in large measure the need of sharp vision, and that with the exception of sharpshooting, firing at the enemy is done in volleys at definite ranges, which is determined by the officers in charge and is irrespective of definite aim at any one object.

THE MERCANTILE MARINE PILOTS

There are two classes of pilots in the United States.

1. *Federal Pilots.*—Under this class is comprised masters, mates and pilots of all steam vessels and the masters of sail vessels of over 700 gross tons, and all other vessels of over one hundred gross tons carrying passengers for hire.

2. *State or Bar Pilots.*—These branch pilots, as they are frequently termed, are under state law or municipal regulation. They lie off the principal harbors and bring in and take out vessels in the foreign trade and in some states sail-vessels in the domestic or coasting trade. They are in no way amenable to the federal government, but are under the supervision of the pilot commissioners or bureaus of navigation of the various states.

FEDERAL PILOTS

According to act of Congress (Sections 4439, 4440, 4442 of the Revised Statutes of the United States), "No original license as master, mate, or pilot of any vessel propelled in whole or in part by steam, gas, fluid, naphtha, alco-vapor, electric, or other like motors, or master or mate of sail vessels, shall be granted except on the official certificate of a surgeon of the Public Health and Marine-Hospital Service, that the applicant is free from the defect known as color-blindness. No renewal of license shall be granted to any officer of the classes named who has not been previously examined and passed for color-blindness: *Provided, however,* That any person that received a license prior to the adoption of the rule demanding a visual examination may have such license renewed for daylight navigation only, provided there is no other bar to such renewal: *Provided, further,* That any person holding a license as mate on steamers navigating waters flowing into the Gulf of Mexico and their tributaries issued prior to 1905 may have such license renewed without being subjected to the examination for color-blindness.

"Any person requiring examination for color-blindness who is living at a distance of 100 miles or more from a surgeon of the Public Health and Marine-Hospital Service may be examined for color-blindness by any reputable physician; and the physician shall furnish a duplicate report of the examination made on the regulation blanks, one copy of which shall be furnished the applicant and the other sent to the local inspectors of steam vessels to whom the applicant shall apply for such original or renewal of license."

The first test for color-blindness in the U. S. Marine dated from an order from the Treasury Department to Supervising and Local Inspectors of Steam Vessels as early as 1880. The wording of the decree was as follows:

By an amendment to Rule 47, Rules and Regulations of the Board of Supervising Inspectors, adopted at the twenty-eighth session of the Board, recently held in this city [Washington], and which was approved by the Secretary of the Treasury, Feb. 13, 1880, and promulgated in Department Circular No. 13, 1880, it was ordered that all persons applying for either a renewal of license, or an original license, as pilots on steam-vessels, shall be required to undergo a visual examination, in order that it may be determined whether such person can properly distinguish the colored lights used as signals on steam-vessels; and, in future, inspectors will issue pilots' licenses only on certificates of surgeons of the United States Marine-Hospital Service that applicants therefor fulfil all the requirements of the rule referred to.

Under the provisions of Department Circular of June 11, 1879, surgeons of the Marine-Hospital Service are directed to make such examinations free of expense to persons applying therefor.

In pursuance of this order the Marine-Hospital Service in 1903 enacted the following (paragraph 119):

Whenever officially requested by the local inspectors of steam-vessels or other proper officials, commissioned officers will examine applicants for pilots' license as to sense of hear-

ing, color perception and general visual capacity, and will give a certificate accordingly.

In Instructions Relative to Physical Examinations (paragraph 15) the following instructions are given:

The eyesight will be tested by the test-types furnished by the Bureau, and the Holmgren worsted test will be employed in testing for color-sense. The test must be made for each eye separately.

LACK OF A FIXED STANDARD

It will be seen, from the foregoing that the federal government has recognized the importance of the color test for a considerable length of time and has enacted sufficient legislation to debar color-blind navigators from the command and piloting of many vessels. It has, however, failed to designate the degree of visual acuity which a candidate for a pilot's or officer's license must possess. The Marine-Hospital Corps, realizing that its officers who make the tests at the request of inspectors of the Department of Commerce and Labor, must have some standard to guide them in their examinations, established an unwritten requirement that vision shall not fall below 15/20 in each eye when tested separately. I have ascertained, however, by extensive inquiry, that many officers of the corps are unaware of the existence of this order, and that those who are cognizant of it do not always adhere to it with absolute literalness.

As at present constituted, the final decision in regard to the acceptance or rejection of a candidate does not reside with the officers of the Marine-Hospital Service, but with the local representatives of the Department of Commerce and Labor, the inspectors of steam-vessels of a port, the officers of the former corps merely transmitting the results of their examination to the inspectors, with a recommendation as to the candidate's fitness or unfitness for the position for which he is applying. The Department of Commerce and Labor having failed to establish a standard, the decision of the degree of vision a navigator must possess before he is granted a license depends entirely, therefore, on the judgment of the Marine-Hospital officer conducting the test, and the opinion of the local inspector.

From what has been said, it is apparent, I think, that the absence of any fixed standard of visual acuity to govern the tests made by the federal government is due to no fault of the Marine-Hospital Service and reflects in no way on the admirable and efficient conduct of that corps. The power to create standards for use in these tests resides entirely in the Department of Commerce and Labor, and I have no doubt but that the present lack of a standard is due to the fact that the officers of that department have never had their attention called to the matter and have not appreciated the actual condition of affairs.

STANDARDS PREPARED FOR SUBMISSION TO THE DEPARTMENT OF COMMERCE AND LABOR

With a view to correcting the evil and to obtaining if possible, a fixed standard of vision on which to base the granting of licenses to navigators under federal law, I visited Washington some months ago and took up the question with General Wyman. This distinguished officer received my overtures with the greatest friendliness and alacrity, and suggested that I submit my ideas of proper standards to him, that he might present them to the Department of Commerce and Labor for consideration and possible adoption.

As I have been much interested in the examination of pilots' eyes for many years, and as official oculist to the Board of Pilot Commissioners of Pennsylvania had just finished testing the eyes of all the pilots of that state under a new law which the commissioners had put in operation at my instance some months before and which had proved most satisfactory in its operation to commissioners and pilots alike, I ventured to accede to General Wyman's request and to draft a series of standards which were framed along the same lines, to govern the examinations of federal pilots. The standards which have been prepared for the consideration of the Department of Commerce and Labor to govern the examination of federal pilots by the Marine-Hospital Service are as follows:

Normal color-sense is requisite. Any imperfection disqualifies.

A candidate must have at least 20/40 uncorrected vision in one eye and 20/70 in the other, and corrected vision must equal 20/20 in one eye and at least 20/40 in the other.

All pilots under 50 years of age must submit to reexamination every five years; those over 50 years every two years.

In the event that the examiner has reason to suppose that visual acuity or color-sense may rapidly deteriorate, he shall issue a license only for as long a time as he considers the visual standards will be maintained, the candidate being ordered to report for reexamination at the end of that period.

DIRECTIONS TO BE OBSERVED IN MAKING THE TEST FOR VISUAL ACUITY

The examiner will observe that the Snellen charts used in the tests shall be exhibited to the candidate at a height of 4 or 5 feet from the ground and at a distance of 20 feet exactly, and this distance must be maintained throughout the test. A good light must fall on the chart, and during the tests charts with different lettering should be employed in such a manner that the candidate cannot become familiar with the letters on the various lines. Each eye should be tested separately by carefully excluding the eye which is not being examined by holding a card before it. No pressure should be exerted nor should the excluded eye be closed.

As soon as the examiner has ascertained the lowest line which the candidate has been able to read, the vision shall be recorded in the form of a fraction, the numerator of which will represent the distance at which the test was made, i. e., 20 feet, the denominator the number on the chart opposite the last line which was read. The fellow eye is now similarly tested. During the performance of the test, the lids must remain naturally open, squinting being prohibited. In the event that the candidate is unable to read all the letters on the line designated as his minimum vision, he will be passed, provided he is able to read three of the letters on the next smallest line with both eyes directed on the chart.

DIRECTIONS TO BE OBSERVED IN MAKING THE TESTS FOR COLOR-SENSE

The wools should be carefully kept in the boxes provided for the purpose, except when in use in examinations, in order that they may not become faded or dirty.

The test should be made only by daylight and never when the weather is very dark or foggy.

A properly assorted set of wools consists of 3 large test skeins, of a light pure green, rose pink and red, respectively, and of 150 small skeins of the following colors: red, orange, yellow, yellow green, pure green, blue-green, blue, violet, purple, pink, brown and gray. In addition, there are several shades of each color and a number of gradations of each tint from the deepest to the lightest.

Test 1.—After the entire set of wools has been spread out on a table before the candidate, the examiner places the large green test skein at a distance of about two feet from the other colors, and asks the candidate to select from the heap of colors all that look to him like this test skein, and place them beside it. No names should be mentioned in connection with any color in the above-worsted test, which should be based only on a comparison of colors. The candidate should be made to understand that he is not expected to find an exact match for the test skein, but that he is to choose all the colors that appear

to him of the same general color as the test skein, both those that are lighter and those that are darker in shade. If he does not easily understand what is wanted, let the examiner himself select the colors; then, having returned them to the general heap and mixed them thoroughly with the rest of the colors, let him call on the candidate being examined to repeat the selection. This demonstration will not enable a candidate who is defective in his color-perception to select the colors correctly, and he may pick out, as looking to him like the large test skein, some greens and also some of the gray or brown confusion colors, which will appear to him of the same general color as the test skein only varying from it in shade.

A person with a normal color-sense will pick out the lighter and darker shades of green rapidly and without hesitation. He may, perhaps, include in his choice a few green skeins inclining to yellow or blue; but this is no evidence of color-blindness, but rather of a lack of practice with colors. The completely color-blind, whether to red or green, will select, with or without greens, some confusion colors—grays, drabs, stone-colors, fawns, pinks or yellows. The incompletely color-blind, or those with a feeble chromatic sense, will add to the selection of greens one or more light fawns or grays; or they may pick out a skein, hesitate, add it to the greens and then withdraw it, and so on.

When confusion colors have been selected, we know that the candidate is either completely or incompletely color-blind. In order to determine its nature and degree we employ a second test.

Test 2.—Return all the colors to the heap and mix them together. Place the rose test skein apart from the rest, and have the candidate select, as before, all the colors that look to him like this skein.

The color-blind will always select deeper colors, i. e., either the light or deep shades of blue and violet. The completely red-blind will select blue or violet, either with or without purple. The completely green-blind will choose green or gray either with or without purple.

A candidate who is proved color-blind by the first test is only incompletely color-blind if he matches the rose with deeper purples alone.

Test 3.—This test is merely supplementary to the two preceding and consists in separating the red skein from the rest of the wools. The red-blind will select, besides the red, green and brown shades darker than the red. The green-blind will select green and brown shades lighter than the red. Only persons with marked color-blindness manifest their defect with this test.

Williams Lantern Test.—Turn the rheostat so as to have a medium illumination from the two incandescent lights in the lantern, or, if an electric current is not available, light both lamps, taking care not to turn them up so high as to smoke, then place the lantern 20 feet from the person to be examined about on a level with his head, the side of the lantern carrying the disc with the colored glasses directly toward him, and darken the room. Place the shutters so that three lights are shown at one time through either the largest or the medium openings, turn the disc slowly, and have the person examined call aloud the names of the colors as shown, designating them thus, "middle red, right red, left green," etc. Under each color is a distinguishing number which is lighted at the same time as its color, and as the examination proceeds the examiner will note the number of the color shown and the name given to it.

After all the combinations with three colors at a time have been shown, change the shutters so as to show one or two lights at a time and revolve the disc again, noting the results as before.

Calling a green light blue, or *vice versa*, calling a yellow red, or, with the smallest opening failing to see the color of No. 7 (cobalt blue) which transmits less light than some of the others, will not be considered serious mistakes, but the confusion of red or green with each other will reject.

UNLICENSED PILOTS

According to the present law, there are a large number of vessels of considerable tonnage whose masters need not necessarily take out a license. Thus, masters of yachts and of sailing vessels under 700 gross tons and of motor vessels of 15 gross tons or less, and motor vessels, irrespective of tonnage, if not engaged in transporting freight or passengers, are not required to have their eyes tested. As a consequence, there are numerous craft on our waterways which are a continual menace to the safety of navigation, for surely a color-blind pilot of a sailing vessel of less than 700 tons or of a yacht or a large motor boat may be as much a menace to safe navigation as one on a larger vessel! Quite apart from the perhaps comparatively insignificant loss of life and property which might follow an accident to a small vessel, it has not infrequently happened that large vessels have been sent to the bottom as a result of collision with smaller craft and hundreds of lives lost, and millions of dollars worth of property sacrificed by the carelessness or incompetence of the navigators of the smaller boat. As an instance of this may be mentioned the following disaster:

"Feb. 11, 1907: Schooner *Harry Knowlton*, 317 gross tons, bound from City Island, N. Y., to Everett, Mass., coal-laden, collided with and sunk passenger steamer *Larchmont*, en route from Providence, R. I., to New York, in Block Island Sound. Collision occurred about 10:30 p. m. Schooner abandoned. Crew saved. Of *Larchmont's* passengers, 89 (estimated) were lost; also 44 members of the crew. . . ."

The government would do well, it seems to me, if it extended its jurisdiction over all navigators of vessels of any appreciable size.

REVENUE CUTTER SERVICE

In addition to conducting the examinations for federal pilots, the Marine-Hospital Service performs the same duties in connection with the Revenue Cutter Service. This service includes officers, cadets and enlisted men. The present requirements demand normal vision without glasses and normal color perception, for cadets and seamen, but no mention is made of the requirements demanded for promotion or of the repetition of the test; the visual standard for the enlisted men between decks, who are mere firemen or stewards, without the need of sharp vision, are the same as those for the true seamen on deck.

LIFE-SAVING SERVICE

The Navy Department controls the examination also of the Coast Guards. This picked body of men are examined annually and the department demands that they possess normal color sense and 15/20 uncorrected vision in each eye.

COAST AND GEODETIC SURVEY

Candidates for the Coast and Geodetic Survey are also examined by the Marine Hospital Corps, but in this department the Department of Commerce and Labor, under whose secretary the Coast and Geodetic Survey is operated, has not established any definite standards. A recent letter directed to the acting superintendent of the Coast and Geodetic Survey regarding the visual test for candidates into their service, brought the following reply:

When an eligible is certified to this office by the Civil Service Commission for a vacancy on the field force, his medical certificate is considered with the view of ascertaining whether he is physically able to stand the hardships and exposures incident to the field work of this survey. *There is no definite standard and each case is treated separately.* [Italics mine.—W. C. P.] Should there be any doubt as to whether a man is physically fit for our service, he will be required to stand a physical examination before an officer of the Public Health and Marine-

Hospital Service. Such an examination would be in order to get exact data regarding the health of the applicant and the question of whether he was suitable for appointment to this survey would still be decided by this office. You will see from this that the Public Health and Marine-Hospital Service is called on more to give facts in any case than to make a decision.

CIVIL SERVICE COMMISSION

According to a ruling of the U. S. Civil Service Commission, applicants for appointment to positions controlled by that service may procure a medical certificate from any physician, but the applicant may be required to pass a physical examination before an officer of the Marine-Hospital Service before appointment. I have been unable to ascertain that this commission has established any definite physical standards, and infer that the Marine-Hospital officers consider each candidate with a view to his general fitness.

STATE OR BRANCH PILOTS

Under an Act of Congress, of Aug. 7, 1789, it is provided "that all pilots in the bays, inlets, rivers, harbors and ports of the United States shall continue to be regulated in conformity with the existing laws of the states, respectively, wherein such pilots may be, or with such laws as the states may respectively hereafter enact for the purpose, until further legislative provisions shall be made by Congress."

This law is still in force, and as has been already said, these state, bar or branch pilots lay off the principal harbors and bring in and take out vessels in the foreign trade and in some states sailing vessels in the domestic or coasting trade. These pilots are amenable to state law or municipal regulation, and are under the immediate supervision of a board of pilot commissioners, or bureau of navigation. This board or bureau has the power to regulate the service of the pilots as it deems proper. The pilots themselves, however, determine in large measure their membership, recruiting their members very often from their own families, and have formed themselves into associations or unions for their protection and benefit. In popular phraseology, they form "a close corporation," and I have been told by a reliable informant that they employ a skilled lobbyist in Washington, who keeps jealous watch that none of their ancient rights or prerogatives shall be curtailed.

The federal government exercises absolutely no control over them, and there is no record in Washington of the requirements which the various states demand of them.

Being unable to obtain from the central government any information regarding the visual tests which state pilots must submit to before they are given their licenses, I addressed a letter requesting this information to the president of the board of pilot commissioners at each of our principal seaports. The answers received at once revealed that with but few exceptions the commissioners in the various states had failed to enact any definite visual requirements, but that the question of the sight of pilots was left to the pilots themselves. As a rule each pilot must serve an apprenticeship of six years under the personal observation of the active pilots, and it is claimed by the pilot associations of most of the states that by this method all candidates with defects of vision are eliminated, before they are recommended for appointment. In some of the states, and this is particularly true of those on the Pacific slope, the pilot commissioners refer the candidates to the Marine-Hospital Service, and each pilot is required to present a certificate that he has passed the examination of that department. It is probable that the officers in charge of these tests demand the same requirements as they do of federal pilots.

The important harbor of New York is under the control of both New York and New Jersey pilots. In order that the Section may be informed as to the precise manner in which the pilots for that busy harbor are examined, I shall read the very lucid replies which were sent me by Mr. D. A. Nash, the Secretary of the Board of Commissioners of Pilots of New York:

In examining pilots for eyesight (which is done at least once each year and oftener if occasion seems to call for it) we use the regular test cards of printed letters prepared and used by opticians for that purpose. We also use the buoys in the upper bay (of which a number are visible from this office) and for readiness or quickness of observation the numbers of passing elevated railroad cars, etc., the examiner using a binocular glass to verify the answers where necessary.

For colors we use the system of worsteds as recommended in the work of B. Joy Jeffries.[1]

I may add that owing to the custom in vogue here of choosing the candidates for apprenticeship from the young men already working as hands on the pilot-boats, it is not often that a color-blind person or one who is below the normal in eyesight reaches the point of applying for registry as apprentice. They are eliminated before that time arrives.

We are not aware of any special tests demanded by the State of New York.

The only provision of law known to the board relating to the examinations of the eyes of the New York State bar pilots (whom alone we have to deal with) is by-law No. 12, d, as follows:

By-Law 12, d.—"Every candidate shall be examined in the presence of the board as to color-blindness and as to his general eyesight and hearing, and before each renewal of his license to pilot he shall undergo a like examination by the secretary. A pilot considered deficient or doubtful by the secretary shall be referred to the board for final action. A person held to be deficient on the above points by the board shall not be entitled to receive a license."

There are no special oculists who test the eyes of the pilots. If a pilot is not satisfied with the decision of the board, he may go to an oculist of his own choice or to the U. S. Examiners for Steamboat Pilots and submit their report to the board.

The final decision rests with the board, who may or may not agree with the findings of these supplemental examinations.

It will be noted that no definite standard of vision is required and that the tests are made by laymen, the services of an oculist being only resorted to in case of dissatisfaction from an adverse ruling.

The tests for the harbor of Boston are made by the Pilot Commissioners themselves, under the following requirements: The candidates must have "good sight for distances, and must be able to tell the colors of light at a distance."

The Delaware River is under the control of Pennsylvania and Delaware pilots. Until a few months ago the Commissioners of Navigation of Pennsylvania submitted candidates to examination by an oculist, appointed by them, and required that each applicant for a license possessed "good vision and normal color perception." As far as I can learn, therefore, the Pilot Commissioners of Pennsylvania were the first to demand that the examination of the pilots under their supervision be conducted by a competent oculist. The standards, however, were faulty, for the requirement of mere "good vision" was too vague and placed too much responsibility on the personal judgment of the examining oculist. It must be said, however, to the credit of the

1. Houghton, Mifflin and Co., Boston, Mass., publishers.

commissioners, that as soon as their attention was called to the defect, they speedily determined to right it, and asked me to prepare what I considered to be a proper and adequate standard, requesting also that a standard for hearing be added to complete the examination of the special senses.

The following report was accordingly presented to them in February of this year and adopted by them shortly afterward. It is only fair to say that while I personally assumed the responsibility of fixing the standards which are embodied in the report, I took the precaution of submitting them to Dr. Alexander Duane, of New York, and Dr. Charles H. Williams, of Boston, from both of whom I received valuable suggestions. The requirements which follow represent, therefore, in a measure the views of both of these gentlemen as well as my own, and I wish to take this opportunity of publicly acknowledging my indebtedness to them.

VISUAL REQUIREMENTS FOR PILOTS

For apprentices and all candidates for pilots' licenses, normal color-sense is requisite; any imperfection disqualifies.

A candidate must be able to read 6/6 Snellen with each eye separately and without glasses. The eyes must be free from disease and from appreciable muscle error.

All pilots under 50 years of age must submit to reexamination every three years; those over 50 years, every year. More frequent examinations shall be made by order of the Commissioners of Navigation in all cases in which there is a tendency to deterioration in sight or hearing.

If at any of these later tests, vision has deteriorated to such a degree that uncorrected vision does not equal at least 6/9 in one eye and 6/24 in the other, and corrected vision 6/6 in one eye and at least 6/9 in the other, or if there be any imperfection in the color-sense, the license shall be revoked until vision and color-sense have attained the above standard.

REMARKS

All tests shall be made by a competent oculist, acting under appointment of the Commissioners of Navigation. A complete record of each examination shall be kept on file at their office, and a copy shall be given to the person examined if he so desires.

In the event that the official oculist of the board has judged a candidate or pilot unfit for the duties of pilot by reason of defective sight or hearing the candidate or pilot may have the right to submit himself for examination to another oculist not connected with the board, and in the event that the opinion of this oculist differs from that of the official oculist, the board shall request the two oculists just mentioned to select a third who shall be acceptable to the board. A third and final test shall then be made in the presence of representatives of the board, and the decision arrived at, at this test and conference shall be final.

The examiner will observe that the Snellen charts used in the tests shall be exhibited to the candidates at 6 meters exactly, that a good light is thrown on the card and that "care be exercised that each eye is tested separately. During the tests, charts with different lettering shall be employed in such a manner that the candidate cannot become familiar with the letters on the various lines." The color-sense shall be tested with tagged Holmgren's wools and also by a Williams lantern. A selection of confusion colors with the true colors when tested with the green test skein or with the rose test skein of the Holmgren worsteds, or a confusion of red and green with the worsteds or with the lantern, will reject.

DIRECTIONS TO BE OBSERVED IN MAKING THE TESTS FOR COLOR SENSE

1. Holmgren Colored Worsted Test.—Place the whole number of colored worsteds on a table in good clear daylight. Put the green test skein at a distance of about two feet from the other colors and ask the man to be examined to select from the colors all that look to him like this test skein and place them beside it. Have him understand that he is not expected to find an exact match for the test skein, but that he is to choose all the colors that appear to him of the same general color as the test skein, both those that are lighter and those that are darker in shade. If he does not easily understand what is wanted, let the examiner himself select the colors; then, having returned them to the general heap and mixed them thoroughly, let him call on the person examined to repeat the selection. This demonstration will not enable a man who is defective in his color perception to select the colors correctly, and he may pick out, as looking to him like the test skein, some of the greens and also some of the gray or brown confusion colors.

Note the numbers on the tags of the skeins selected as similar to this green test skein, and also whether the selection is prompt or hesitating.

Return all the colors to the heap, mix them together, then place the rose test skein apart from the rest, and have the person examined select as before all the colors that look to him like it, and note the numbers on the skeins so selected.

No names should be used in connection with this worsted test, which should be based simply on a comparison of colors.

2. Williams Lantern Test.—Turn the rheostat so as to have a medium illumination from the two incandescent lights in the lantern, or, if an electric current is not available, light both lamps, taking care not to turn them up so high as to smoke, then place the lantern 20 feet from the person to be examined about on a level with his head, the side of the lantern carrying the disc with the colored glasses facing directly toward him, and darken the room. Place the shutters so that three lights are shown at one time through either the largest or the medium openings, turn the disc slowly, and have the person examined call aloud the names of the colors as shown, designating them thus, "middle red, right red, left green," etc. Under each color is a distinguishing number which is lighted at the same time as its color, and as the examination proceeds the examiner will note the number of the color shown and the name given to it.

After all the combinations with three colors at a time have been shown, change the shutters so as to show one or two lights at a time and revolve the disc again, noting the results as before.

Calling a green light blue, or *vice versa*, calling a yellow red, or, with the smallest opening failing to see the color of No. 7 (cobalt blue) which transmits less light than some of the others, will not be considered serious mistakes, but the confusion of red and green with each other will reject.

STANDARD FOR HEARING

Words or numbers spoken by the examiner in an ordinary conversational tone of voice must be repeated correctly by the person examined standing with closed eyes 20 feet from the examiner. This degree of aural acuteness must be maintained not only at the initial test for candidates, but also at all subsequent ones.

DIRECTIONS TO BE OBSERVED IN MAKING THE TEST FOR HEARING

Have the room as quiet as possible, place the person to be examined at a distance of 20 feet from the examiner, with one ear toward him. Have the man close his eyes and put his finger over the further ear, then have him repeat aloud the words spoken by the examiner in a conversational tone, and record the distance in feet at which this can be done correctly. Have him turn the other ear toward the examiner and repeat the test.

THE DEPARTMENT OF STATE

The following is an extract from information which has recently, i. e., May 4, 1910, been prepared for the guidance of those surgeons of the Army, Navy, or Public Health and Marine-Hospital Service, who are to conduct, when necessary, physical examinations of candidates for foreign service appointments.

Regarding the matter of vision it may be said that defective vision possible of correction by glasses and not due to ocular disease is not considered as physically disqualifying a candidate for appointment, although in the report of the examina-

tion note should be made of the character of the defect, if any, and of the possibility of and necessity for correction. If correction be found to be necessary, the Department of State will take the matter up with the candidate.

THE NAVY

Candidates for admission into the U. S. Naval Academy are required to have normal visual acuteness, i. e., 20/20 for each eye without the aid of glasses. A normal color sense is also requisite. On graduation a vision of 15/20 in each eye is requisite, capable of correction to 20/20, and freedom from ocular disease. To quote still further from a letter received a few weeks ago from Dr. C. F. Stokes, the Surgeon General of the Navy:

A candidate for the Medical Corps, for civil engineer or for chaplain of the Navy must have 12/20 in each eye, capable of correction to 20/20, and be free from ocular disease.

An applicant for the Pay Corps and the Naval Hospital Corps must have 15/20 in each eye and be free from ocular disease.

For the Navy Nurse Corps (female) there are no specific requirements beyond what is the opinion of the examining surgeons necessary for the proper performance of work.

For appointment as a commissioned officer in the Marine Corps, 18/20 in each eye is required, capable of correction to 20/20.

The requirement for enlisted men in general is 15/20 in each eye. On subsequent enlistment and, in certain instances, on first enlistment, as in the clerical force (yeoman branch), this requirement is sometimes waived, providing there is no disease.

For officers on promotion, the board must certify that the officer is able "to perform efficiently all of his duties at sea."

A moderate error in refraction, if fully corrected by glasses and there is no ocular disease, does not necessarily reject in the upper grades. All candidates are examined for color-blindness before promotion, and defective color-sense is always a sufficient cause for rejection.

Applicants for the position of gun-pointer (already enlisted) must have 20/15 with the right, or aiming eye, and a minimum of 20/20 with the other eye.

These, so far as I am aware, comprise the visual requirements which are in force in the public service of the United States, and with the exception of those projected for the Army and of those already adopted by the Navy, and the Department of State, I think it will be agreed that there is much need of elaboration and standardization. The requirements for pilots, both federal and state, are surely inadequate, and I am convinced myself that were the subject thoroughly investigated the loss in the past of many lives and of much property could be traced to faulty vision in pilots and navigating officers.

Anticipating some action by this Section on this question which is of such vital importance to the country, I have already done what I could to establish better standards, as you have heard. The Surgeon-General of the Marine-Hospital Service is endeavoring to have the Department of Commerce and Labor adopt the standards of which I have told you, and I have written to a prominent oculist in the largest ports of each coast state, enclosing a copy of the Pennsylvania laws and urging the enforcement of similar laws by the commissioners of navigation in his state for the proper control of state pilots.

It will not be an easy matter, however, to influence legislation either in Washington or the various states; nor indeed do the standards whose adoption is urged cover the entire field of our public services. I would suggest, therefore, if it meet with the approval of the Section, that a commission be appointed from its body, to cooperate with the Department of Commerce and Labor, and with the Marine-Hospital Corps, to establish proper standards and to devise proper tests in making the examinations, for the examination of the eyes of all candidates in their several departments, the duties of whose position demand sharp sight and healthy eyes. And in order that the purposes of this commission may be ratified and supported by the Association at large, I would advise that the representative of this Section in the House of Delegates be empowered to present the matter to that body for its official sanction.

2049 Chestnut Street.

THE RÔLE OF PATHOLOGY AND PHYSIOLOGY IN PREVENTIVE MEDICINE*

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Preventive medicine, in the nature of things, may well be accepted as the criterion of the state of scientific medicine. That it is again coming into its logical place is due to the great progress which has been made during recent years in all branches of scientific medicine, and in this development the studies in pathology and physiology have been of fundamental nature.

In this symposium I take it that the part assigned to me is to refer in a concise way to the prominent facts contributed through the avenue of pathology and physiology which have influenced preventive medicine. I recognize that this will be largely a review of well-known facts, and I fear there will occasionally be some encroachment on the subjects treated in the other papers of the program.

In the memory of many now living, our conception of the nature of the disease has been revolutionized, and with the recognition that its ultimate processes, whether produced by external agents or the result of modifications in the normal metabolism, are chemico-physical, we have reached a standpoint from which to approach the problem of prevention and cure in a rational way.

TUBERCULOSIS

In no phase of preventive medicine has the knowledge of causative conditions been a greater factor than in the prophylactic control of tuberculosis, the real advance dating from the time when the etiology and infectivity of this disease were established.

It was an interesting fact that the true significance of the pathologic lesions and their infectivity were recognized long before the tubercle bacillus was demonstrated. Klencke in 1843 first demonstrated the infective nature of tubercle by producing general miliary tuberculosis in rabbits by inoculating "tubercle cells." The importance of his discovery was not recognized until in 1865, when Villemin by carefully controlled inoculation experiments on rabbits confirmed Klencke's views and demonstrated beyond doubt the infectiousness of tubercle by transmission from animal to animal.

Klebs in 1868 demonstrated by animal inoculation that the sputum of tuberculous patients contained an infective element which was capable of producing the disease in guinea-pigs. Chauveau in 1868 infected calves by feeding them bovine tuberculous masses. Gerlach in 1870 by ingestion experiments demonstrated

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the infectivity of milk from tuberculous cows. Tappeimer, in a series of experiments beginning in 1877, demonstrated beyond doubt the infectiousness of phthisical sputum by inhalation experiments. Giboux, in 1882, succeeded in infecting rabbits by confining them in boxes into which tuberculous patients had expectorated, thus demonstrating long before Flügge's classical experiments, the dangers of sprayed particles of sputum of phthisical patients.

Thus the infectiousness of tuberculous matter in man and cattle, the dangers of tuberculous sputum and milk, the identity of the different tuberculous lesions in man and animals, and the established value of animal inoculation as a diagnostic aid were fully known before the birth of bacteriology and before the epoch-making paper of Koch in 1882 announced the discovery of the tubercle bacillus.

Koch confirmed Cohnheim's views as to infectiousness being the best criterion of tuberculous disease, but the establishment of the value of the microscopic search for the tubercle bacillus in diagnosis placed the prophylaxis of tuberculosis on a scientific basis, and demonstrated wherein the sources of danger existed. Subsequently Cornet contributed his exhaustive experiments demonstrating the dangers of dried sputum, indicating one of the principal modes of infection to be by inhalation of dried particles of expectorated material contained in dust from rooms inhabited by tuberculous patients. Later Flügge proved the danger of droplet infection in the immediate neighborhood of such patients.

The entire system of hygienic care of sputum and other discharges has been built up on these results, and in this newer knowledge of tuberculosis the field of general sanitation has been greatly enlarged; the recognition of the widespread prevalence of the infection, the great frequency with which healed lesions were found, and the knowledge of the importance of the character of the tissue soil, led to the adoption of present day sanatorium,, open air, and dietetic treatment with all their beneficent results.

Results are at all times most convincing, and in no way is this more clearly shown than in the decreased death-rate from tuberculosis during the past three decades. In England there has been a decrease of 50 per cent. since the discovery of the tubercle bacillus. In New York City during the past twenty years the reduction in the death-rate from pulmonary tuberculosis has been nearly 40 per cent, and in Prussia the death-rate has been notably decreased, being 50 per cent. less in 1903 than 1885. In Boston, during the last thirty-one years the diminution in death-rate from tuberculous disease approximated 55 per cent., a decrease representing in actual saving 14,412 lives. Thus has the sum of human happiness been advanced by this phase of scientific medicine.

TYPHOID—CHOLERA—DYSENTERY

A second interesting chapter in preventive medicine is presented by the studies on typhoid, cholera and dysentery.

Before any successful warfare can be waged against an infectious disease it is of the highest importance to know with precision the nature of the agent which produces the disease, how it invades the individual, what its method of action is, how it is excreted, and finally how it perpetuates itself outside the living body.

The aforenamed diseases are associated principally in their symptoms and pathology with the intestinal tract, and in a search for the causes of these diseases it was but natural that the study should focus itself on the rich bacterial flora of the intestines. While the specific micro-organism for each of them has been determined, it has not been possible to produce the typical clinical picture in the lower animal, so that in a sense there has been a break in the chain of evidence associating a micro-organism with the disease process. Aside from the influence on municipal hygiene and general sanitation, these studies have added to our knowledge in another direction of far-reaching importance—in the discovery of the so-called Pfeiffer phenomenon.

In the early nineties Pfeiffer successfully produced a state of immunity in animals with typhoid bacilli and cholera vibrios in which they could stand, without symptoms, doses which at first would have proved fatal.

In further study he investigated the fate of cholera and typhoid germs introduced into the peritoneal cavity of immunized animals, the germs becoming clumped together and dissolved—the animal remaining in good health. This clumping, agglutination or dissolution, of disease germs under the influence of specific immune agents constitutes the Pfeiffer phenomenon, which in many ways has revolutionized our knowledge of infectious diseases.

A similar agglutination was observed in the serum of a sick human being, also likewise produced in a test-tube, and through the further elaboration by Grueber and Widal was brought forth the so-called Widal test, a diagnostic procedure most valuable in typhoid fever and many other diseases.

The importance of a specific reaction such as the agglutination phenomenon in the diagnosis of fevers with symptoms specially referable to the intestinal tract requiring the isolation of organism from the stool, is apparent.

It is impossible to say how many lives are saved annually and how much disease and suffering are prevented through methods of diagnosis alone made possible by the discovery of Pfeiffer's phenomenon. Indirectly it has influenced the development of protective inoculation, as furthered by Haffkine in cholera, Shiga in dysentery, and Leishman and Chantemesse in typhoid fever.

The rôle of chronic typhoid carriers is now recognized as an important factor in maintaining typhoid infection in a community, and the knowledge that such individuals may exist in any community will strengthen to a very great extent the hands of the health officers in checking the ravages of the disease.

INSECT INFECTIONS

It was also in the study of this class of infections that the transmission of disease by means of insects was specially developed. Much evidence has been brought forward in recent years to show that flies are frequent carriers of typhoid infection, and there can be no question of the proof of the same.

Fisher estimates the duration of life of typhoid bacilli in the bodies of flies as twenty-three days, and finds that they can live for some days on the head and legs of flies, illustrating that there are two ways of transmission—on the surface and within the body of the insect. During the Spanish-American War flies were important agents in the transmission of the disease, and since then a number of epidemics have been traced to this source.

Perhaps one of the most important contributions to modern scientific medicine is the demonstration of the mosquito as an intermediate host in the transmission of malaria and yellow fever. To do justice to this remarkable addition to our knowledge would mean a review of the wonderful accomplishments of preventive medicine in Cuba, South Africa, and other regions once veritable pest regions in the tropics.

To-day the Canal Zone of Panama, for years the grave-yard of the white man, has a death-rate as low as that of any city in the United States.

The problem of life in the tropics for the white man has been solved, since malaria and yellow fever may now be prevented by very simple measures. And these are all results of laboratory studies which have placed in our hands power for good never before wielded by man.

BIOLOGIC AND PHYSIOLOGIC STUDIES

In the diseases diphtheria and tetanus, a new problem is presented. While due to specific micro-organisms, special toxic products are generated, and by learning to cope successfully with these toxins by means of antitoxins, humanity has been greatly benefited. Both diphtheria and tetanus antitoxin sera are active prophylactic agents, while their curative virtues, especially the former, have robbed these diseases of much of their terrors. The use of specific antibacterial serums has thus far not been very promising except in the case of the serum of Flexner and Jobling for cerebrospinal fever, in which it has produced most beneficent results.

The use of bacterial vaccines has no such field of usefulness as the antitoxins just mentioned, either in a curative or prophylactic sense, yet there is reason to entertain a hopeful view as to the future, for the progress within the past ten years inspires the greatest confidence.

The principle of producing a protective immunity by means of vaccines consisting of an attenuated virus, as illustrated by smallpox vaccination, inspired the brilliant achievements of Pasteur, leading to his epoch making contributions in connection with chicken cholera and anthrax, and out of which arose the marvelous researches of Pasteur and his co-workers on the subject of rabies, demonstrating the location of the purest and most concentrated virus in the central nervous system, and gave to the world the wonderful protective inoculation which has reduced the mortality in man to a fraction of one per cent.

The rôle of vaccination for smallpox in preventive medicine hardly requires any emphasis as its efficacy is generally accepted. An epidemic of smallpox is practically impossible in a well vaccinated community. Vaccination is also the only scientific means of controlling smallpox, and its adoption in the place of quarantine, as is the case in Minnesota, is a most logical procedure.

The triumphs of preventive medicine are reflected mainly through the advances in pathology and its handmaid, bacteriology, mainly because it has been more prominently concerned with the disease of distinctly infectious or bacterial origin; but equal benefit has come through the avenue of physiology by a better conception of a large class of noninfectious conditions; for a better knowledge of the functions of organs and their perversions has led to most remarkable results.

Medical science has profited in all its aspects largely from the purely biological researches, and coincident with the progress in the infectious processes a closer study of cell-life has led to the recognition of a vital activity or special function of cells, as illustrated by a better knowledge of the ductless glands. The attitude of Heidenhain in assuming a "vital activity" of epithelial cells resulted in considerable progress in the recognition of processes of secretion and intercellular changes accompanying them. It is an interesting fact that the newer knowledge of the ductless glands is largely the result of cooperation with the clinical domain, and in most instances the newer conception of the function of these glands was contributed by the clinician.

In Hermann's well known work on physiology published in 1883 it is stated in one line that we know nothing of the functions of the thyroid and adrenals, but in the same year the contributions of Kocher of Berne, in an extensive report of the after-effects of complete removal of goitrous glands recognized for the first time the significance of the thyroid in the animal economy. The light which was shed on the vital importance of these glands lit up the entire field of internal secretions which had remained impenetrably obscure for many past centuries.

The intense activity of modern experimental medicine managed to bring to light in less than ten years the following important facts: 1. The relation of the thyroid to natural myxedema and cretinism and the surgical conditions of a similar nature. 2. The effects of the radical removal of a goitrous gland can be obviated by leaving behind a small part of the gland. 3. The extract of the thyroid gland is capable of removing the symptoms due to the natural or artificial absence of the gland. 4. The unrestricted use of thyroid brings on a condition which is very similar to the pathological complex known as exophthalmic goiter or Graves' disease or hyperthyroidism.

Associated with the brilliant chapter of thyroid investigation is that of the relation of the parathyroid to tetany or post-operative spasms. Beebe has observed that the nucleoproteins of the parathyroids are capable of controlling this symptom. MacCallum and Voegtlin discovered that this can be controlled also by the administration of calcium.

Although our knowledge of the function of the suprarenals is far from complete, the relation of the medullary portion to various pathologic and toxicologic states, as chloroform poisoning, shock, nephritis, etc., is recognized. We know it to be an absolutely vital organ, and exerts its physiologic influence by emptying its secretion into the blood; the extract that is obtained has proved of immense practical and scientific importance.

The discovery by Marie of the relation of the hypophysis to acromegaly ranks with the preceding brilliant results.

The production of experimental diabetes by Von Mering and Minkowski by complete removal of the pancreas has established the control of carbohydrate metabolism by the internal secretion of the pancreas. As the knowledge of this function becomes more complete there is hope that the prevention and treatment of diabetes will be on a firmer foundation.

By the studies of these vital organs that three decades ago were thought to be useless, surgery, therapeutics and general medicine have learned many lessons, and the field of preventive medicine has likewise been enlarged.

It is only fitting that emphasis should be given to the recent advances in the physiology of the digestive organs, and their bearing on medicine and surgery, and indirectly on preventive medicine.

The researches of Cannon, Starling, and Pawlow on the movements of the stomach and intestines have greatly

benefited the surgeon and given the internist a better conception of digestive processes and their functional disturbances.

The work in the physiologic chemistry of nitrogen-purin metabolism by Chittenden and Folin has placed modern dietetics on a scientific basis, and this, with the important discoveries relating to the metabolism of the inorganic constituents, such as those relative to acidosis, have opened up a new and hopeful chapter in scientific medicine by suggesting a probable cause and preventive measures for nephritis, arteriosclerosis, diabetes, and other disturbances in nutrition.

CONCLUSION

The purpose and object of preventive medicine is to keep away from mankind those ills which interfere with the pursuit of happiness by crippling physical well-being. More exact knowledge of the cause and nature of disease enables the physician to prevent that damage, and therein lies the rôle of pathology and physiology in preventive medicine.

13½ South Dubuque Street.

THE RÔLE OF THE PHARMACIST IN PREVENTIVE MEDICINE*

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The words "preventive medicine" have, to a commercial druggist, a significance which he has yet failed to grasp entirely in its far-reaching influences. The term "preventive medicine," according to our lexicographers, means, "something taken, used, or done beforehand to ward off disease." While, in one sense, prophylactics are medicines which are intended to prevent disease, specifically the term "preventive medicine" has a much wider application and means "medicine that aims to ward off disease by properly directed personal and public hygiene."

While the pharmacist has not, and should not have, the proper equipment for diagnosis and the prescribing of remedies in serious cases, he should be imbued thoroughly with the principles of preventive medicine, and, as far as in him lies, bend his energies in the direction of stamping out disease in season and out of season.

It would at first appear that the pharmacist's rôle is necessarily a restricted one and again the public, in some quarters, do not look to the apothecary to advise them not to take medicine, but very frequently such advice, if tendered, is apt to arouse in the minds of a patient or customer a suspicion of ignorance, for the public have been trained to expect that medicines are to be paid for—advice never; and it cannot be denied that a patient coming from a doctor's office, after hearing him discourage the use of any specific medicine for the case, goes right to the drug store and asks the druggist to give him some relief from the hacking cough, because he thinks he cannot afford to travel to some more salubrious climate as his doctor has recommended.

It should always be the aim of the pharmacist to uphold the opinion of the physician, and if the customer demands a medicine which he has been in the habit of using to alleviate his cough it would be the duty of the pharmacist to say a few words against depending on the palliative, and certainly not encourage the patient to use such a weak prop. Just as a physician gives to a patient the best advice possible, so should the pharmacist refrain from giving any suggestion which would lead to the building of false hopes.

The pharmacist, is, of course, in business; his daily bread depends on his sales and he cannot be expected to give medical advice, for if he does he will be very apt to hear from the physician on the ground that he is trenching on the latter's prerogative, and the conscientious druggist is frequently placed in a very delicate position, for he is at a loss to know to what extent he may go, in discouraging the use of some questionable mixture and just how much he ought to say. Cases are frequent in which physicians have been unwilling to prescribe any medicine whatever, in certain cases and recommend instead, exercise, pure air, pure food, pure water, sleeping in the open air, etc., and when the patient refuses, or finds it impossible from his environment to take this advice, he has bought some preparation from a pharmacist and obtained relief.

A wise and skillful physician would often find it judicious, in order to secure the patient's adherence to preventive measures, to prescribe some safe mixture in addition. Pharmacists have for centuries furnished medicines which are prophylactics—vaccine in all its forms, serums, antiseptics, sanitary appliances and many others, even including drinking water in bottles. The tendency of the modern drug store is in the multiplication of stock and branching out into side lines, many of which are not intended for the exclusive use of the sick.

Pharmacists can do much in the way of preventing infection from noxious germs. Cleanliness has come in with the antiseptics, and asepsis is being vigorously exploited. There have been several practices followed by careless and ignorant druggists which have undoubtedly increased the death rate in the past. Bottles and boxes which have been sent straight from the infected sick room to be refilled, bottles for holding oil emulsions, and other medicines, are usually sent back without cleansing thoroughly.

Corks are particularly dangerous as germ bearers; corks which have been in the mouths of tuberculous patients are often picked up by infants, and as everything goes into the mouth of a baby, is a source of infection. The habit of not removing the old label from the bottle or box coming from the sick room but pasting the new one right over the old dirt is a habit which has been animadverted against for centuries. Unclean, germ-laden hands and fingers in pharmaceutical manipulations should be carefully guarded against, and the disgusting habit, sometimes seen, of using the mouth as a cork phesser, by chewing the cork, is almost obsolete, thanks to continued preaching and teaching. Corks, bottles and boxes from infected sick rooms should be immediately destroyed; in fact, they should never leave the infected room. Prescriptions could easily be refilled by telephoning or having some member of the family, not infected, send a written memorandum giving the number and date of the prescription which is to be refilled, and then have the pharmacist send new containers.

The rejuvenation of corks, particularly for wine bottles and other beverages, is attended with considerable danger and whenever old bottles and boxes come into the store to be refilled they should be disinfected or sterilized, but far better destroyed, so that their power for increasing disease may be eliminated. The intelligent pharmacist, when he is once awakened to the necessity for taking up his daily burden in preventive medicine, will be enabled to do a vast amount of work of benefit to his fellows.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. BIERRING AND PROFESSOR REMINGTON

DR. W. A. EVANS, Chicago: Discussing the theme of Dr. Bierring, I should like to know whether it is your judgment that health departments should offer their laboratories in the diagnosis of venereal diseases? Are the procedures conclusive enough and at the same time simple enough to be within our field?

Discussing Professor Remington's subject, has not the time come to standardize the sale of antitoxin? Antitoxin for curative purposes should not be given promiscuously any more than flour or quinin. On the other hand, it should not be sold for $1.50 a thousand. The way to standardize its sale is, first, to abolish "returns." This will require machinery for quick moving of the product. Second, to reduce the advertising and introduction expense. Third, to make its sale a cash transaction. Fourth, to have but two sizes—1,000 units and 5,000 units. Such a system should reduce the price to 30 to 40 cents a thousand, retail. Antitoxin at this price would save lives through (a) prompter use, (b) larger dosage.

DR. LISTON H. MONTGOMERY, Chicago: Pharmacists, while dispensing our prescriptions, are careless sometimes about removing the collection of dust and other detritus about the corks and necks of their bottles. I have noticed this. Take simple syrup, for instance; there may be deposits from flies and other filth which has accumulated. On more than one occasion I have gone behind a prescription counter and courteously and quietly called the attention of the druggist to such conditions. If a bottle prescription is filled, detritus, débris, dust, germs of disease, etc., may thus be dispensed. You will notice this as you examine and shake the medicine in the bottle at your next visit to your patient. Particularly is this true in collyria. In fact this condition of sediment is often present in other prescriptions that are dispensed. Of course not all registered pharmacists are careless in this respect, some are sanitary and scrupulously clean and remove whatever collection or deposit there may be about the cork or mouth of a bottle before they dispense a prescription.

I am careful about permitting a druggist to refill my prescriptions, unless he has my consent. I have printed on my blanks these words, "This prescription must not be refilled without my order," or the words, "Non repetatur" printed thereon, unless it is something that is very ordinary and doesn't do any harm.

To illustrate, I have a patient, a lady, who has a mitral lesion, who is taking my prescription. She has a friend who has heart disease. My patient, desiring to favor her friend, gave the number of the prescription on the label of her bottle and she had the prescription dispensed and nearly died as the result of taking that medicine. She evidently had a different condition altogether from that of my patient.

DR. GEORGE EDWARD FELL, Buffalo, N. Y.: There is more to this subject than most of us appreciate. Some of my prescriptions have been filled for seven years after they were made. I heard of it by my patients telling me that they had been giving that prescription around, since it was made, which was seven years before. If such things do occur why not have the pharmacists help a little and disinfect the bottles that come back, if they are going to allow them to come back? I don't believe it is within our power to prevent the druggist from refilling prescriptions, or the patients from taking them back, even if we do lay down our law and request them not to do it. If it could be done, it would be a great help. I believe the pharmacists can do a great deal to aid us in preventive medicine in many ways.

DR. SENECA EGBERT, Philadelphia: In regard to the paper on pathology and physiology, I think we should all appreciate the wonderful assistance that has been given preventive medicine by these two sciences which, as the gentleman said, were thought thirty or forty years ago to be of no practical benefit to the doctor. Some of us have been advocating the exploitation of the knowledge that we now have. There is no question that we need to do that to get popular education; but we have only opened the door, as it were, in the matter of original research; and while I do not believe that the ordinary medical school is the place for carrying on all of the original research work, I do believe that every one of us ought to support those who are capable of doing it and who are doing it as admirably as our colleagues in the profession have done in the past two or three decades.

With regard to the paper of Professor Remington, there is another line in which the druggist, it seems to me, can be of tremendous assistance to us, and that is in his counter-prescribing in venereal diseases. If the druggist will not do that, and if he will send the patient to the doctor, there is some chance not only of prophylaxis but of education, a chance that otherwise might be missed. I do believe that this is one phase of the pharmacist's work wherein a great deal of good can be done, by telling a man or a boy who comes to him for a cure for diseases of that kind: "No, I am not the man for you. We pharmacists, as well as the doctor, realize that to-day those diseases are no longer to be looked on as harmless troubles; they are diseases dangerous to you and to the community as well, and I cannot prescribe for or treat you."

DR. WALTER L. BIERRING, Iowa City, Iowa: I appreciate that in the field of preventive medicine we are making use, in a coordinate way, of the knowledge of the different fundamental principles which apply to the entire subject. There is also much in the suggestion of having laboratories associated with boards of health or with other bodies interested in preventive medicine, in order that special research work may add greatly to our knowledge along this line, and at the same time benefit the cause of general sanitation.

In Iowa we have been conscious for some time of the fact that there is much discrimination and hardship imposed by the high price of antitoxin, so the department of health has taken on itself to introduce a method of furnishing antitoxin, not free, but at a reasonable price. It has made arrangements with several manufacturers of antitoxin so that it is able to furnish the same at a rate of about 40 cents per thousand units; a supply is kept on hand at different depots throughout the state to facilitate its being easily obtained and arrangements are also made to have it transferred readily from one city to another as the particular depot may run short in its supply. In that way it is kept constantly fresh, and kept moving, which was a point specially mentioned in this discussion. By this method there can be no thought of pauperizing the citizen, yet it brings the antitoxin to such a low figure that no one will have an excuse for not receiving its benefit; and again, where the people are indigent and unable to procure it the county or municipal authorities will furnish it as needed.

I am sure what was said by Professor Remington in reference to the opportunity for infection in a modern drug store is very applicable, and therein lies a duty for physicians to do away with the pernicious practice of having prescriptions refilled, thus making such a medium as the drug store a source for the spread of infectious diseases.

PROF. JOSEPH P. REMINGTON, Philadelphia: The American Pharmaceutical Association has taken up the matter of what is called the declaration of the prescription; and the mooted question of the ownership, which has been discussed for so many years, is likely to be taken up in a business-like way. It is the intention to refill prescriptions when indicated by the physician, and only on his approval. You will see, later on, I have no doubt, published in THE JOURNAL of the American Medical Association, just what action was taken recently at the meeting at Richmond, Va.

I believe that if this Section, or the American Medical Association, would get up a properly worded request or circular which could be sent to the druggists throughout the United States, calling their attention to causes of infection in dispensing prescriptions, it would be received in a proper spirit. It is very desirable to call the attention of the druggist and the physician to this subject, so that causes of infection may be reduced to a minimum. Let the physician go in and say, if any bottle, box or container comes from an infected home destroy it at once and have the prescription refilled with new and clean containers. It only needs a little education on the part of physicians and pharmacists to remedy the evil to a very great extent.

AUTO-INTOXICATION AND ALLIED INTESTINAL TROUBLES

AS A POSSIBLE CAUSE OF CERTAIN VASCULAR AND FUNCTIONAL DISTURBANCES OF THE EYE *

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This paper is the result of a personal conversation in October last, the participants being our Chairman and Secretary and myself. We met in Philadelphia, at the invitation of the Chairman, to discuss the program for this meeting.

Among other matters, ocular disturbances from various toxic influences were considered. The papers which have already appeared were reviewed, and especially the pioneer work of de Schweinitz with his chemical helpers, Edsall and Fife. These researches, it will be recalled, had to do with inflammatory lesions, specially those of the uveal tract. We thought of lid, conjunctival and various functional anomalies of the ciliary structure, things of daily observation, which resist local treatment, are prone to relapse, and which are not uncommonly associated with those remote symptoms which de Schweinitz has aptly defined as "conjectural." That is, one finds associated with certain lesions of the lid structures or functional derangement of the anterior uvea—just the history and symptoms which, if associated with uveitis, would lead one to think that the internist (having at command chemical means to investigate defects of metabolism) could throw light on etiology. Is there more in this than association? If so, how far has the physiologic chemist enabled us to go?

This question was put to Dr. Edsall, and he was invited to follow an interrogatory paper with one explaining what we want to know. His reply was that he felt that, after his contributions, accessible to all, there was nothing more definite to add. We felt that it was useless to seek farther. Still, our own clinical observations led us to think the matter worth presentation, and this position has been, since October, confirmed by a paper by Dr. J. F. Shoemaker[1] of St. Louis. The lesions of the adnexa which I wish to consider are those of the lids and mucosa. De Schweinitz describes the former in his text-book under the title, "Hyperemia of the Lid-Border (Hyperemia Marginalis, Vasomotor Blepharitis)." He says:

> The margins of the lids have an unpleasant, slightly swollen, red appearance. Exposure to cold, wind or any strain on the accommodation causes a feeling of heat followed by burning and lacrimation. The redness is caused by the passive congestion of the superficial blood-vessels. Scales or crusts are absent, or but sparingly present.

Discussing the etiology of blepharitis, without specially mentioning the vasomotor variety, but evidently with it in mind, he says that it may follow in the wake of an exanthem, may result from ametropia, "inflammations of the tear-sac, stricture of the nasal duct, and obstructive disease of the posterior nares, although it may be difficult to decide whether the blepharitis has caused the closure of the lacrimal passages or whether this has developed the blepharitis." Dr. Shoemaker, presenting the clinical conjunctival picture, with a possible autotoxic cause in view, says:

> As a rule, the cases I have observed have very little or no secretion. The eyes feel uncomfortable, particularly with their use in artificial light, and the blood-vessels of the bulbar conjunctiva are considerably engorged. The diagnosis must be made, however, from the history of indigestion or constipation, together with other symptoms of autointoxication. Some of these symptoms are drowsiness, especially after eating, dizziness, periodic attacks of headache, certain diseases of the skin, particularly of the erythematous or urticarial types, various nervous disturbances and aching and stiffness of the muscles which might be confused with, or attributed to muscular rheumatism. The patients may not complain of any of these symptoms, but inquiry will usually develop the fact that they suffer with one or more of them.

Before attempting to couple the lid and conjunctival disturbances and discussing the possibility, in certain cases, of an autotoxic cause, I want to add a third class. I allude to recurrent circumcorneal injection, recurrent asthenia of the ciliary muscle, spasm of accommodation, and the condition known as hysterical accommodation spasm, or cyclospasm. It is well described in Posey and Spiller's book, "The Eye and Nervous System." It has been studied specially by Parinaud, and his description is given:

> The spasm may be partial or total, unilateral or bilateral. It is similar to that produced by eserin, and has as its chief characteristic a displacement toward each other of the punctum proximum and the punctum remotum—that is to say, there is a diminution of accommodation at both ends of the line.

Here, then, are three vascular or functional troubles which we see constantly in routine practice. To connect them with remote causation demands first, painstaking exclusion of known causes. For instance, in hyperemia of the lids, lacrimal obstruction, as de Schweinitz observes, is frequent. As he says, again, it is not always easy to say which stands as cause, infection to the lids from the excretory apparatus, or to the latter from the lids. I am sure that often the course is toward the lids, and that at least one factor can be readily overlooked. Definite accumulation of mucus in the sac or persistent epiphora are easy enough; but lesser grades of obstruction are not so readily diagnosed. Ziegler told us about this years ago, and devised probes of great value. I am sure that infection, or, possibly, irritation, from the nose can often do no more than cause catarrhal swelling of the mucosa in the canaliculus or even shutting of the puncta. Chronic hyperemia of the lids often disappears after dilatation of the puncta and canaliculus without going into the duct at all. Nitrate of silver solutions of 2 to 5 per cent., applied to a swollen turbinal, and a somewhat persistent use of such a mildly stimulating agent as an oil solution of menthol in the nostrils, often cure chronically congested lids. Injection of the conjunctiva, as described by Shoemaker, stands in close relation to lid hyperemia. The structures are but parts of one vascular area.

Circumcorneal injection, in the absence of corneal lesions, of course, focuses attention on the anterior part of the uveal tract. This brings us to the most important of the recognized causes of lid and conjunctival hyperemia and functional disturbances of the ciliary muscle, namely, refraction and muscular errors, and the varied relations they have to each other. It is not my purpose to do more than mention this causative factor. In such an association, for instance, as hyperopia and exophoria, one could naturally look for relapsing ciliary cramp; but every clinician knows that cases occur in which his best efforts, along line of recognized causes, fail to cure.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Shoemaker, J. F.: Etiology and Treatment of Certain Forms of Conjunctivitis, Am. Jour. Ophth., January, 1910.

If at first relieved, the patients relapse. Why do they not stay cured?

A second essential, if relapsing eye troubles are to be attributed to remote disturbances, is the more or less constant association of ocular lesions or derangement of eye function, with symptoms of the supposed causative disease. This association, I take it, is what de Schweinitz means by the presence of certain things which lead one to "conjecture" a toxic cause. If one of the three classes of eye trouble occurs when the patient is constipated, when he has periods of neuralgia, when he is suffering from what he calls "nervous dyspepsia"; if local remedies do not relieve, or, at the most, give only temporary relief; if all these symptoms, including those of the eye, clear up when the remote trouble is removed, then we are justified in suspecting causative relation. If these simultaneous eye and remote troubles occur not once, but repeatedly, and if they occur not in one, but in many patients, this suspicion becomes a conviction. I do not consider it necessary to prolong my paper with narration of cases; brief allusion to one will suffice.

A man of 25, total refraction error D 1. of hyperopia, with less than D 0.5 astigmatism with the rule. Vision immediately after cycloplegia distant vision (d. v.) 20/15; near-point accommodation 12 cm.; orthophoria, d. v., exophoria 3° at near.

Gradually, from this state of things, he develops a reduction of d. v. to about one-half, with recession of his near point to 30 cm. With or without correction of his low error, this thing occurs. Why? Invariably, in three or four such experiences, he has given a history of pain after eating and constipation; there has been foul breath, and he has learned that this association exists. He leads a sedentary life, and makes his living by keeping books. Homatropin restores normal eye function, and so long as he keeps his diet regulated, and constipation does not overtake him, ciliary cramp does not return.

This case is narrated because I have linked ciliary disturbances with those of the lid and its mucosa. Dr. Shoemaker has covered these sufficiently.

While we can eliminate recognized causes, and prove clinical association, we cannot as yet fulfill a third condition—explanation of pathogenesis. We call it auto-intoxication; and there are good reasons for so doing. For instance, we see conjunctival hyperemia and "vasomotor" blepharitis in diseases of known infectious origin; note their occurrence in the beginning, through the course and after the exanthemata. We see all grades of ciliary involvement, from asthenia of transient type to complete and stubborn paralysis, after various infectious diseases, typhoid fever, chicken-pox, scarlatina and diphtheria. These lesions we attribute to toxins, and it is to be specially noted that since the advent of diphtheria antitoxin we see fewer cases of postdiphtheritic paralysis.

Secondly, in diseases not themselves infectious, but capable of forming toxins, we note similar eye troubles. Nephritis, diabetes and occasionally pregnancy serve as examples.

Thirdly, there is good reason for thinking of the intestines as the source of this autotoxic influence. After the proved association between uveitis and intestinal disorders, the work of de Schweinitz and Fife seemed to afford chemical proof of a pretty satisfactory nature. Cases of pupillary derangement, clearing up after expulsion of intestinal parasites, are recorded. Bruns of New Orleans recited such a case in discussing my paper[2] on ocular neurasthenia at our meeting in 1907. There is the peculiar edema of the conjunctiva in trichinosis. In two cases I saw during the past winter, the edema involved the bulbar conjunctiva, between the limbus and external canthus, presented a peculiar yellowish reflex, and was totally inexplicable, till fever, blood examinations, etc., cleared the diagnosis. In the first volume of Osler's "Modern Medicine" this eye symptom of trichinosis is recorded.

The reason, then, for calling these eye disturbances, associated with various intestinal disorders, "autotoxic" is that they bear a strong similarity to eye troubles of either known general infectious nature, or to those seen in systemic diseases capable of producing toxins. Shoemaker attributes the conjunctival congestion to the fact that the conjunctival "substantia propria consists of adenoid connective tissue which is richly supplied with blood-vessels and lymphatics, the walls of which are irritated, and become diseased by these poisons." He quotes Deland as authority. Such effects on blood-vessels, with subsequent exudates and hemorrhages, are well-recognized results of toxemia. So, too, are varying degrees of interference with muscular function, from slight impairment to complete paralysis. In the presence of changes, characteristic of toxemia, it is but natural to think of the latter as a cause, in spite of the fact that we do not know the toxin at work or are even sure that there is any such influence. Autotoxic diagnosis is a matter of inference, though undoubtedly the most probable, in our present state of knowledge. This is as far as we can go till the physiologist and chemist blaze the way. So far they have not given us very dependable diagnostic means or explained pathogenesis much beyond the hypothetical stage, at least so far as my limited knowledge goes. A recent publication shows their own uncertainty. Among the Oxford medical publications of last year is a most interesting and instructive book by Arthur F. Hertz, entitled "Constipation and Allied Intestinal Disorders." Speaking of auto-intoxication or copremia, Hertz says:

There is no entirely satisfactory method of estimating the activity of bacterial decomposition in the intestines. Jaffé thought it could be measured by the amount of indican, and Baumann by the amount of ethereal sulphates in the urine. The results obtained, however, give no definite indication as to the degree of autointoxication, which may be present, as different putrefactive bacteria produce different products, some of which are comparatively innocuous, whilst others are excessively poisonous. Hence an increase of the quantity of indican or ethereal sulphates in the urine is no evidence that excessive production of other more poisonous products is occurring, and on the other hand, it would be quite possible for severe intestinal auto-intoxication to occur in the complete absence of any change in the urine which could be demonstrated by Jaffé's or Baumann's methods. Both indican and ethereal sulphates have been found to be increased in some cases of constipation, but by no means constantly . . . and Strauss and Philippson found a diminution in the ethereal sulphates as often as an increase. When excess of these substances is present in the urine of constipated individuals, it may just as well be due to the increase in the quantity absorbed, owing to the longer stay of the feces in the colon, as to an increase in the quantiy produced. . . . There is thus at present no chemical evidence that an abnormal amount of decomposition occurs in the intestines of constipated people. . . . It is, however, possible that even in the absence of any increase in the production of poisons, the slow passage of feces through the intestines might lead to autointoxication by giving more time for the absorption of products of bacterial decomposition. But definite evidence is still wanting to show that the products of ordinary bacterial decomposition in the intestines can give rise to poisonous symptoms on absorption.

Hertz then discusses the poisonous effects of ethereal sulphates, sulphuretted hydrogen, "which is normally

2. Woods, H.: THE JOURNAL A. M. A., July 20, 1907, xlix, 211.

present in traces in the colon," ammonia, the amido-acids, indol, and concludes that all are only slightly toxic. Regarding the latter, he thinks that the amount apt to be absorbed in constipation would not affect a healthy individual, but that those "with an abnormal nervous system" would react. He sets aside ptomains as the cause of toxic symptoms in constipation because none has been found in the urine or feces of persons suffering in this way. He says:

> Volatile fatty acids and most of the products of bacterial decomposition of carbohydrates are rapidly oxidized in the body so that they are not likely to produce any poisonous effects. . . . It is, of course, possible that the symptoms are due to the absorption of some unknown poisons. But no accurate means have yet been devised for investigating this possibility. . . . Though there is no evidence that such a condition as copremia exists, yet many of the results of constipation are more easily explained by the theory of auto-intoxication than in any other way. This is particularly the case with some of the nervous symptoms. . . . This auto-intoxication is probably due to the abnormally long period during which the feces are present in the intestines, and to the consequent excessive absorption of poisons, and not to any increase in bacterial decomposition.

Relative susceptibility is then discussed. The liver is "the chief defense against auto-intoxication," and its power to convert toxic into harmless substances is presented. Even after absorption, no great harm is done if the eliminative organs are in good shape.

Lastly, Dr. Hertz states that the ultimate effect of toxic absorption depends on the state of the organ itself. He emphasizes the harmful effects of constipation in producing functional diseases and on "a depressed nervous system."

I have introduced these views of Dr. Hertz because they seem to me full of significance. Reduced to their simplest terms, they indicate that "auto-intoxication" from constipation and other intestinal disorders is but a working hypothesis, and seems to explain, better than any other, clinical findings. They also throw great doubt on the value of usual methods of chemical investigation. There are certain interesting clinical facts which I have observed, having some bearing on this contention. Exactly the same ocular symptoms which I have detailed have been observed in chronic appendicitis. Two of the patients suffered from repeated attacks of appendiceal pain before operation, and functional eye symptoms came immediately after their subsidence. One girl developed in different attacks "cyclospasm," a manifest astigmatism which disappeared after cycloplegia, and finally a chorioidal exudate. There were no symptoms of "auto-intoxication" and no constipation. The interesting point is that the patient had an inflamed adherent appendix removed four years ago, and has had no functional eye disturbance since. I alluded to this case in my paper on ocular neurasthenia in 1907. Of course, it is possible that the pain produced neurasthenia, and that the so-called "hysterical accommodation" resulted from this. Still, the girl is a remarkably level-headed person, and not in the least hysterical, in the ordinary acceptation of the word. The other patient was an educated woman in the thirties, who presented repeated and inexplicable lengthening of the punctum proximum. I knew nothing about her appendix symptoms till she came to tell me about a prospective operation. This was two years ago. I have seen her frequently, as she has come at my request, and I have never found relapse of the functional eye trouble. The only abdominal symptoms in both cases were those of appendicitis. I cannot connect auto-intoxication with these, and incline to the belief that there is some other path to eye irritation.

Again, in cases in which there has been association of eye anomalies with constipation and its toxic results, I have had the urine carefully studied. In some of them the chemical findings were negative; however, treatment directed to the intestines is keeping the patients well. Allusion has been made in this paper to unrecognized infection as a cause of the symptoms under consideration. I have now under care a woman, 63 years of age, who has had for twelve years peripheral lens striations of the non-progressive type. She preserves normal central vision. She is gouty, a free liver —or, rather, has been—and came to me this time for obstinate conjunctival congestion of the right lower lid. She brought with her a diagnosis of constipation, indicanuria, auto-intoxication, etc. There were no manifest symptoms of lacrimal trouble at first, and for several weeks we worked along autotoxic lines without improvement. Then she developed a not very annoying epiphoria, and a probe introduced into the duct showed no stricture. The canaliculus was not split. But from this time, under the one probing and repeated washing of the sac, there has been steady lessening of the chronic conjunctival hyperemia. By contrast the case shows the essential difficulties of diagnosis.

In conclusion, I think that there is enough association between the eye disturbances named and manifest symptoms of auto-intoxication from constipation to justify the belief of causative relation. There is reason to think that the same eye troubles can follow intestinal lesions which do not essentially produce toxic products. It seems that the physiologic chemist is not yet in position to help us much in proving the diagnosis, and that until he is we must study these obstinate cases from a clinical standpoint only. If we are ever to explain them or to relieve them, we must view the eye as the receiving as well as the sending end of what we call remote disturbances.

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ABSTRACT OF DISCUSSION

DR. J. F. SHOEMAKER, St. Louis: The three forms of ocular trouble mentioned in Dr. Woods' paper are frequently observed. Each has more than one etiologic factor, and I believe that intestinal toxemia will be recognized as the underlying cause in an ever-increasing number of cases. I am unable to furnish any chemical proof in the way of evidence that definite poisonous substances are to be found and isolated in patients suffering thus; but, I believe that carefully collected clinical evidence is of great importance and that there are such substances. I have observed more cases of the second class, viz., those of patients suffering with conjunctival hyperemia and inflammation, than of the other two classes. In more than one case of conjunctivitis, after I had exhausted my best efforts in the way of local treatment with little or no benefit, great relief was soon obtained by treatment of an existing constipation or indigestion. In such cases a hearty dinner will often undo more in a single night than can be accomplished in weeks in the way of curing by local treatment, particularly if much meat and alcoholic stimulants are taken. Some of these patients often are more uncomfortable at night than during the day. Several patients have complained of awaking during the night with quite severe pain in the eyes, and most of them have more or less discomfort when they first awake in the morning and state that they have some difficulty in opening their eyes, not on account of the presence of any pus which glues the lids together, but on the contrary, on account of the lids being so dry that they adhere to the globes.

While I have, of course, had cases of the third class, in which the ciliary body is affected, with circumcorneal injection,

spasm of the ciliary muscles of subnormal accommodation, I have not been able to satisfy myself that they were caused by auto-intoxication, although I have more than once suspected it. I have at present, however, a patient who is a confirmed dyspeptic and suffers with constipation, and who, whenever she uses her eyes for near work for a short time, complains of a sharp pain in her left eye as though she had a foreign body in the eye. The most careful and painstaking correction of her refraction and muscular imbalance does not relieve the trouble. I am convinced that the cause of the irritation is some toxic substance absorbed from the intestinal canal.

One of the most chronic and persistent cases of conjunctivitis I have ever had was in a young woman who had a chronic appendicitis. She was troubled with constipation, so that I do not know that the appendicitis had anything to do with causing the conjunctivitis, but as we are told that constipation is sometimes caused reflexly by a chronic appendicitis, this latter condition may be the primary cause of some of these troubles. R. T. Morris reports a case of double central chorioiditis occurring in a man who had a chronically inflamed appendix. With the removal of the appendix the inflammation of the chorioid stopped short and cleared up with practically normal vision. Some patients may present symptoms of auto-intoxication and yet deny that they have any indigestion or constipation. I believe that the explanation in some of these cases is that while the bowels move every day, perhaps, yet the evacuation is not complete and enough fecal matter is retained in the large intestine to produce a toxemia. In one of my cases there existed a spastic condition of the sigmoid which prevented the complete evacuation of the bowel, and at times caused quite stubborn constipation. It was not until a rectal examination was made by a competent internist that the true condition was found and treatment was satisfactory. In such cases ordinary laxatives or purgatives are of little value in treating the constipation.

I am of the opinion that in the great majority of cases the trouble arises because meats or protein foods are not properly digested, thus permitting excessive putrefaction to occur in the intestines. Some people seem able to digest properly only a small quantity of meat, while others may not be able to digest any well. As Thayer and Turck have pointed out, in such conditions a few grams of meat may be enough to produce severe symptoms from the poisons formed, and while the amount of poison may be very small it may, nevertheless, be quite injurious because of its being constantly repeated.

DR. JUDSON DALAND, Philadelphia: To demonstrate absolutely the relationship between intestinal toxemia and functional or organic ocular diseases would necessitate the isolation and experimental administration of these toxic substances and the reproduction of these lesions. The character of the toxic substance or substances, unfortunately, is not known, and therefore we are compelled to fall back on general clinical evidence, which is strong enough to produce a belief in a causal relationship, in certain cases, between, for instance, the condition known as biliousness and certain ocular disturbances.

To-day intestinal toxemia may be viewed from two standpoints; one, concerned with aberrations or variations in metabolism, and a second concerned with putrefactive changes in the contents of the colon—a statement which shows the vast field of possibilities. The diagnosis of intestinal toxemia or of disturbed metabolism is often not difficult. The simplest and most common form of intestinal toxemia is that symptom-complex known as biliousness. Occasionally there exists what may be termed fecal retention; the bowels move daily, but the colon is never empty. A simple method exists by which this condition, so frequently in association with intestinal toxemia, may be determined, namely, by irrigating the colon after the morning evacuation of the bowels; if more than a half teacupful of feces is recovered, fecal retention is present. Feces thus obtained should be examined microscopically and chemically.

The chemical sign of intestinal toxemia of putrefactive origin that has attracted the most attention is the presence in the urine of indican or the indoxyl sulphate of potassium. It is now believed that this substance in itself is non-toxic, but plays the rôle of an indicator, indicating that substances formed during the process of putrefaction have been absorbed. These substances are exceedingly variable in number, combination and quantity, depending on the character and amount of foodstuffs ingested, and variations in digestion. Certain of these substances may be detected by a skilled organic chemist after prolonged labor; while others are unknown or unrecognizable. It is well known that intestinal toxemia may exist in the absence of indicanuria or skatoluria.

DR. J. L. THOMPSON, Indianapolis: I have many patients coming to me who tell me that they have been to their physicians and that the latter have been treating them with electricity and similar methods, and I look into the eye and see no edema, no hemorrhages and no trouble with the optic nerve; I have written to the patients' physicians to give half a large tumblerful of a saline purgative every day, every two days or twice a week, and then have them come to see me again. I do not have them stop the electricity. The patients come back in three weeks greatly changed. When one is in doubt the bowels should be cleaned out thoroughly.

DR. L. CONNOR, Detroit: I remember the custom of the late C. R. Agnew, many years since, when I was studying ophthalmology under him, of telling patients suffering from one or more disturbances of the eye which were related to abdominal infections that they should so modify their living habits as to restore an equilibrium in their metabolism. For this he prescribed systematic walking, with such clothing as made it easy; appropriate attention to food, the alvine evacuation, the care of the skin; and I observed that the patients recovered from their ocular disturbances. The same practice is continued to the present. Dr. Woods told me recently that his patients with corneal trouble did better if they lived in the open air. In short, many ophthalmologists have recognized these conditions though unable to trace to their exact causation, in spite of the successful empirical treatment. As a stimulus to farther study Dr. Woods' paper has done us good service. We may hope for better results as every doctor gains a minimum of real ophthalmic practice by his working knowledge of infectious diseases of the eye and its simple refractive defects. The observations of 135,000 physicians added to those of the 3,000 ophthalmologists ought to furnish material for conclusions nearer the facts of the relations of both gross and fine lesions of the eyes to defective abdominal metabolism.

DR. A. G. BENNETT, Buffalo, N. Y.: In my experience as oculist to the Children's Hospital, Buffalo, I get numberless cases of inflammations of the conjunctiva and cornea that improve almost immediately as attention is directed to the intestinal tract. This is the type of case that I was taught to treat with syrup of the iodid of iron and yellow oxid of mercury ointment. My experience has been that when you look after the intestinal tract you do not need very much local treatment.

DR. R. D. GIBSON, Youngstown, O.: This paper brings out the necessity of the oculist's having had a general medical experience before going into the eye specialty. The man who has not undertaken to practice medicine before he goes into eye-work does not appreciate the effect of intoxications on the eye. We find that children with phlyctenular conjunctivitis are children with bad digestive troubles, that have been given sweets to eat, that have fermentation. Many years ago I learned that calomel given in small doses, frequently repeated, was almost a specific for this trouble. It was the eliminative effect of the calomel on the alimentary canal. There is much virtue in the admonition of the old Scotchman, "Fear God and keep your bowels open."

DR. S. L. ZEIGLER, Philadelphia: This question of autotoxemia and the perverted metabolism from which it arises brings us face to face with the great problem of the pathology of the future, which will undoubtedly turn our attention from the study of bacteriology to the study of physiologic chemistry. It seems to me that chemotaxis is the pathogenic process that originates many of the diseases we are studying, and possibly many of those that we have been ascribing to bacterial invasion. Some years ago I wrote a paper on the relation between errors of diet, errors of metabolism, intes-

tinal errors, and the causation of corneal ulcers. There is no question but that the ingestion of sweets, tea, coffee, and other articles of that character, will create a disturbance that is first manifested in the intestines or in the stomach, from there is transmitted to the nose and thence through the tear-duct to the eye. That is rather a circuitous route for the transmission of this vicious influence, but that is the course it takes. Eales of Birmingham has long since called attention to intra-ocular hemorrhage due to constipation, and I believe we should carefully consider the important rôle that constipation bears to these disturbances. I reported some years ago a case of this character in which the constipation sometimes lasted for ten days. It originated in a severe attack of dysentery. There were recurrent ciliary hemorrhages, and following these a cataract, which was afterward operated on successfully. In the other eye there were hemorrhages that became organized and remained there.

As the remedy for these conditions we should first cleanse the bowels, thus relieving the constipation and removing a great deal of this deleterious material from the system. We also have the nose to clear out, thus improving the breathing process, and thereby increasing the oxidation of the system. We likewise have the skin to look after, and very often much can be accomplished by sweats, whether by means of vapor baths, electric light baths, or pilocarpin. These are all problems that we must consider, and it seems to me desirable that Dr. Woods should continue this investigation and bring it to a consummation. In order to do this successfully he will undoubtedly require the cooperation of the physiologic chemist. This will be extremely difficult to accomplish for two reasons; first, it is almost impossible to procure these biologic products in large enough quantities for analysis, and second, the skilled physiologic chemist is still a *rara avis*.

DR. HIRAM WOODS, Baltimore: In a case just seen, a man 38 years old, had lost one eye some years ago by accident. He had been in the hands of half a dozen people trying to get relief from asthenopia. He said that at times, without warning, his vision would become obscure. He unloaded a whole lot of glasses; among them one was a plus 1 cylinder, 150 degrees, and another, a plus cylinder at 80 degrees. All had been given by capable men, simply because when he went to these men he had this manifest refraction. Under prolonged scopolamin cycloplegia the only error was 1½ spherical. With that he had cl. v. 20/15, and accommodation from 8 out to 20 inches for Jaeger 1. I told him to come the next time he had an attack. When he came, the first thing I did was to put a drop of atropin in the other eye. He had an anterior synechia there and I wanted to see if that was the source of irritation. That did not help him. The second time, vision had fallen from 20/15 to 20/50; his accommodation range was 11 to 15 inches. He was constipated, had a foul breath odor, and was very irritable. That man was given calomel with a saline purge and allowed to go on with his work. He came back after two days with a 20/15 cl. v. and accommodation restored. I have got him in the hands of an internist who has put him on a restricted meat diet, intestinal antisepsis. I believe this is an example of many cases we will find if we look for them and study this question of metabolism.

DEVELOPMENT OF THE TEMPORAL BONE*

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I wish to describe briefly some of the points of difference between the os temporale of the infant and that of the adult.

In the os temporale of the nine-months fetus[1] the ossification of the three centers is well advanced, so that they are all attached to each other, but neither firmly nor throughout the whole of their adjoining edges. The squama temporalis is thin and light. In its posterior portion is seen the series of perforations which mark the outer wall of the antrum tympanicum (which is often incorrectly called the antrum mastoideum but which distinctly is not a part of the processus mastoideus). The processus zygomaticus is light. The fossa mandibularis is merely a shallow depression below the posterior extremity of the processus zygomaticus. The middle and posterior roots of the processus zygomaticus are distinct, but the anterior root has not yet appeared.

The annulus tympanicus is a mere ring. The bony meatus acusticus externus does not yet exist. The annulus tympanicus is attached at this stage by both anterior and posterior extremities, though but slightly. The anterior and posterior tubercles are indicated, but are so small that unless their later development were known they would not be worthy of being named. The greater part of the annulus tympanicus is not yet attached to the os temporale.

Part of the pars petrosa is well developed. The processus mastoideus is wholly absent. There is no processus styloideus. The fossa jugularis is very shallow. The sulcus sigmoideus is discernible, but is shallow and not well marked. The part of the bone that fills in the space under the canalis semicircularis superioris has not yet appeared. The petrotympanic fissure, the canaliculus chordæ tympani, the tuba auditiva and the semi-

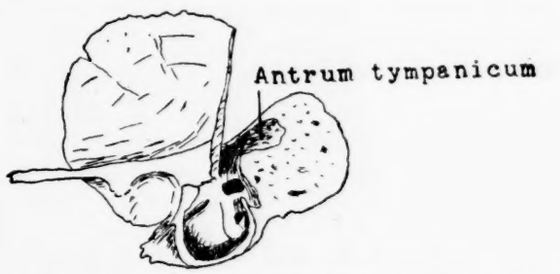

Fig. 1.—Temporal bone of a 9-months-old fetus, cut to show the location of the antrum tympanicum. Note that the antrum lies wholly above the level of the zygoma.

canalis tensoris tympani are not yet separated from each other, but all form one common cleft between the annulus tympanicus and the pars petrosa.

DEVELOPMENT OF THE ANNULUS TYMPANICUS

In the os temporale of the 9-months fetus (Fig. 1) the annulus tympanicus is a mere ring just wide enough to contain the groove for the attachment of the membrana tympani. It is attached at its two extremities to the squama temporalis alone. There is no attachment to the pars petrosa.

In the temporal bone at about the time of birth (Fig. 2) the annulus tympanicus has become fused with the pars petrosa, which partly overlaps the lower posterior part of the annulus. The attachment has taken place, not through any growth of the annulus, but through a growth of the pars petrosa outward to meet the annulus. The tuberculum tympanicum anticum and the tuberculum tympanicum posticum are distinctly marked, but are not prominent.

In the 3-months-old child there is a distinct growth of bone from the annulus toward the common opening of the tuba auditiva, fissura petrotympanica and semicanalis tensoris tympani.

In the 6-months-old child the annulus has widened considerably at the lowest point and also at the two

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Throughout this article, reckoning of the age of the fetus is by lunar months.

tubercles, so that its opening is no longer circular, as it was at birth, but is elongated in the vertical diameter.

At a year old and at 1 year and 3 months old the widening has progressed, but is still most marked in the lower part of the region of the posterior tubercle, so that there is now a marked projection of this tubercle into the opening of the annulus.

At a year and 6 months of age the growth of the annulus is not only toward the opening of the annulus, but also horizontally outward at the posterior part of the annulus, so that this part has a rough outer margin similar to that presented in the adult bone for the attachment of the cartilage.

From this age on the anterior and posterior tubercles gradually approach each other, until, at 3 years, they have met and fused together, still leaving an opening which represents the original opening at the annulus tympanicus. While this opening usually closes, it does not always do so, and one not infrequently sees adult bones with this defect present.

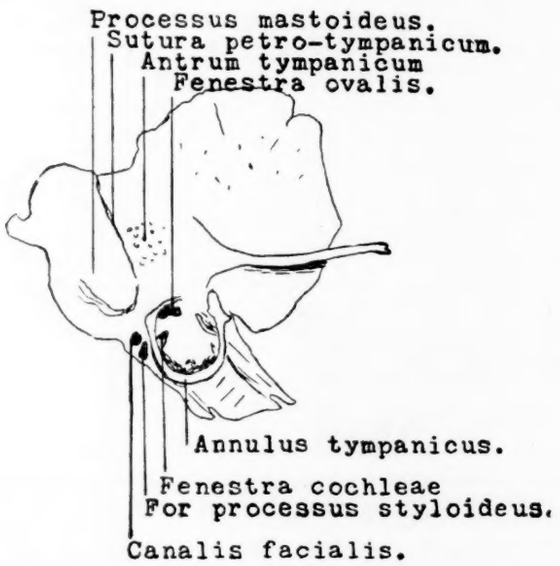

Fig. 2.—Temporal bone of the infant at birth, somewhat inclined, showing the first rudiments of the mastoid, the perforated outer wall of the antrum, and canalis facialis opening on the outer wall of the bone about the middle of the annulus tympanicus. Note that the petrotympanic suture lies between the antrum and the developing mastoid.

In the temporal bone of the new-born infant the free margin of the annulus is smooth, but from the age of 1½ years the outer margin becomes thickened and roughened.

In proportion, as the annulus widens and closes, the fossa mandibularis deepens from the shallow marking seen in the new-born infant to the deep cavity seen in the adult bone.

DEVELOPMENT OF THE PARS MASTOIDEA

There is no pars mastoidea in the fetal bone and very little in the child up to the age of 1 year. The first marked indication we have of a mastoid appears at the age of 1 year and 3 months. It is true that, before this time, there has been some change in the shape of the portion which is subsequently to become the pars mastoidea. It has extended outward as the posterior attachment of the annulus has widened.

In a child of 1 year and 3 months there is a distinct bulging outward at about the level of the upper posterior extremity of the annulus. This bulging continues until, at 2 years, the projecting pars mastoidea has reached down to the level of the inferior surface of the pars petrosa.

LOCATION OF THE SUTURES IN THE OS TEMPORALE

In the nine-months fetus there is but one suture, the petrosquamous, in addition to the attachments of the annulus tympanicus to the squamotemporalis, which latter are known as the tympanosquamous anterior and tympanosquamous posterior.

In a child at birth there is, in addition, the petrotympanic suture anterior and the petrotympanic suture posterior, which are directly continuous with the tympanosquamous anterior and tympanosquamous posterior respectively.

By the growth of the pars petrosa the bony tuba auditiva and the semicanalis tensoris tympani have become shut off from the canaliculus chordæ tympani and are wholly surrounded by the pars petrosa. The canaliculus chordæ tympani lies between the tympanic plate and the pars petrosa. The petrotympanic fissure is what remains of the anterior squamotympanic suture. A portion of the pars petrosa becomes wedged in between the tympanic plate and the pars squamosa, dividing the squamotympanic suture into two portions, which become the squamotympanic anterior and the petrotympanic

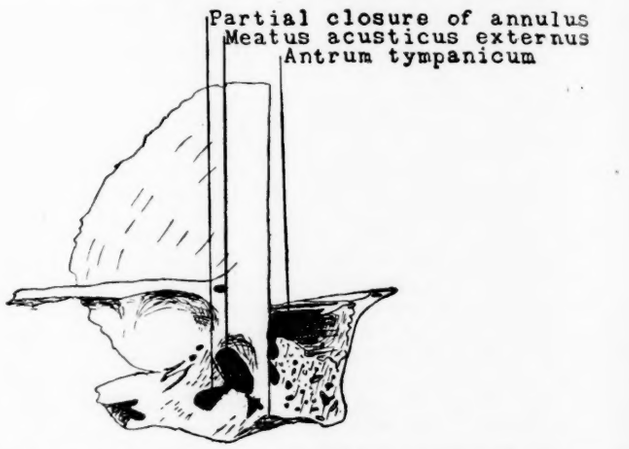

Fig. 3.—Temporal bone of a child of 2 years cut to show the location of the antrum. Note that the antrum lies wholly below the level of the zygoma.

anterior. The squamotympanic posterior eventually becomes obliterated and the petrotympanic posterior is shown only by a narrow line which still contains a canal for the transmission of vessels.

In the course of time all the sutures become obliterated more or less, but that portion of the petrotympanic suture lying behind the antrum tympanicum may be traced in the adult bone by the denser part of the pars mastoidea corresponding to its location. The cells lying in front of it are comparatively small, while those lying behind it are apt to be large. This suture thus forms the dividing line between the antrum tympanicum and the larger mastoid cells. The obstruction to the mastoid cells by this suture explains why mastoiditis beginning in the antrum tympanicum is so often much more destructive near the tip of the mastoid than near the antrum.

The squamopetrous suture along the superior surface of the bone is quite a wide cleft in the new-born child. It leads into the tympanum and antrum through the tegmen and, as is well known, by its failure to close leaves those dehiscences which predispose to meningeal and brain infections.

LOCATION OF THE CANALIS FACIALIS IN THE YOUNG BONE

The course and shape of the canalis facialis do not vary so much in themselves as in their relation to the surrounding parts, and this is chiefly dependent on the development of the pars mastoidea.

In the new-born child and for several months afterward, that is, until the mastoid begins to develop, the opening of the canalis facialis is on the outer surface of the pars petrosa of the os temporale. It lies just outside and behind the opening in which the processus styloideus is afterward formed. It is about opposite the middle of the annulus tympanicus and 2 mm. posterior to that ring. Its location is such that, if the ordinary incision for the complete mastoid operation were made, the nerve would be in great danger of division. This location explains why facial paralysis of the baby is caused by instrumental delivery. With the development of the pars mastoidea at the age of 1 year and 3 months it begins to recede from the outer surface of the os temporale and to be covered by the overhanging processus mastoideus until in the adult bone it lies fully 1.5 cm. within the plane of the outer surface of the processus mastoideus.

LOCATION OF THE ANTRUM TYMPANICUM IN INFANCY AND ITS MIGRATION IN LATER LIFE

In the temporal bone of the new-born child the recessus epitympanicus is much smaller comparatively than it is in the adult. Instead of extending across the whole width of the tympanum it occupies a little less than half that space and extends directly upward from the middle of the tympanum.

The antrum tympanicum lies directly above the recessus epitympanicus and extends obliquely upward and backward from it. Thus the antrum tympanicum drains into the top of the tympanum instead of into its upper posterior part, as in the adult. In the 9-months fetus (Fig. 1.) the antrum extends from 2 mm. in front of a vertical line through the posterior limb of the annulus to 2 mm. posterior to that line. It is wholly above the level of the processus zygomaticus. In the child of 2 years (Fig. 3) it has come to lie wholly below the level of the processus zygomaticus and has assumed the adult position with reference to the surrounding parts. This migration is well advanced at the age of 1 year and 3 months.

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ABSTRACT OF DISCUSSION

DR. GEORGE E. SHAMBAUGH, Chicago: Instead of beginning at the bottom and working up, it is the rule to-day for the men entering special fields to begin at the top, and comparatively few ever do work down and acquire that knowledge of the fundamentals of the special field which should constitute their preparation for the clinical study of cases. Too often the thing the prospective specialist aims to do is to see and treat cases, and as a rule it is the operations, the most difficult part of treatment, that he wants to undertake first. Too few of the men who begin in this way ever do master the fundamentals of their specialty, the detailed knowledge of anatomy, the embryology, the physiology of their subjects, which is the sort of training that makes it possible for them to become expert clinicians. The internist does not begin by attempting to treat diseases of the liver, nor the surgeon by operating on the liver. They first become grounded in embryology, the anatomy and the physiology of the organ, and then they are in a position to study intelligently disease and to apply treatment. The specialist in otology or ophthalmology ought to begin in the same way to acquire first of all a knowledge of the fundamentals of his subject. The dentist, who is working in a highly specialized field of medicine, is much more careful to get adequate training in the fundamentals of his specialty, although the clinical problems he has to meet are in no way so difficult to deal with as in our specialty. It is only here and there that a specialist undertakes, as Dr. Boot has done, to work up the fundamental anatomy of the temporal bone. This is something that cannot be acquired from text-books nor from drawings; it can be learned only by the handling of the preparations themselves.

ADAPTABILITY OF SCIENTIFIC INFANT-FEEDING TO GENERAL PRACTICE*

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PHILADELPHIA

Realizing that human milk is the best food for babies, the pediatrist determined to his own satisfaction long ago that, this failing, the best substitute is properly adapted cow's milk. To state that the percentage, fractional or American system of infant-feeding is a panacea for the nutritional ills of infants during the first year of life would be to adopt a fallacy and create a position readily made untenable. To regard this as the best and easiest means of adapting cow's milk to the digestive capacity of the individual is rational and scientific. It affords the best way of carrying the greatest number of feeding cases, both sick and well, to a successful issue. That it is not too intricate and complex for adoption by the general practitioner can be proved by demonstrating that failure results, not from the method, but from causes independent of it. For convenience these causes of failure may be grouped under three headings.

I. CAUSES OF FAILURE DEPENDENT ON THE PHYSICIAN

For many of these causes of failure the pediatrist himself is to blame. In his teachings and in his writings he has made the subject too complex. Didactically he has taught not enough principles and too many methods, and in the hospital wards he practices none of them, leaving the matter of feeding to the inexperienced intern, confining his own efforts to his private patients and the consultation room. The result has been that nearly all hospitals for children are carrying many semimarantic infants who neither gain nor lose, and who are finally taken home or die from some intercurrent affection. From this the general practitioner takes his cue that perhaps the matter of percentage feeding is too intricate and too complex for the pediatrist himself. This is not the case. It simply emphasizes a fault, almost unpreventable, that even in the best-conducted institutions the number of infants to each nurse is too great. The result is that the patients suffer from the lack of that intimate contact and perfect hygiene which is desirable and necessary to the successful conduct of any medical case, and, further, that the pediatrist is unable to give the time and study to each individual patient.

In this connection I believe the subject of sufficient importance to recommend that each large hospital and college should have on its staff a pediatric dietitian.

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*Read before the North Branch of the Philadelphia County Medical Society, and by invitation before the Southeast Branch of the same society.

The multiplicity of algebraic monstrosities proposed and taught as methods of milk modification, "simple and practical," have justly bewildered the practitioner and he eagerly takes refuge behind the directions plainly printed on the label of some patented food. The laboratory modification of milk, while theoretically ideal, is most often impractical and too expensive and will not be considered here.

For home modification the practitioner, as well as the pediatrist, should become familiar with one, and by no means more than two, methods of milk modification. These can readily be acquired with a little patience and they soon become a part of his therapeutic equipment. I would recommend Holt's top-milk method for the majority of cases in private practice, and Baner's cream-and-milk method for institutions and the poorer class of private work and dispensary patients as there is no waste. The more these methods are used the clearer and more simple they become.

The physician should know the normal constituents of human and of bovine milk, and the physical as well as the chemical and bacteriologic differences. Without giving these their full value, failure will be absolute. It is insufficient to diagnose indigestion: he must designate the variety of indigestion, whether it be the protein, fat or sugar which is at fault, and act accordingly. He must seek to adapt the milk to the baby, not the baby to the milk, remembering that each baby is a law unto itself. He must pay no attention to the child's age with the idea of determining its digestive capacity or the amount to be fed or the interval of feeding. It must ever be borne in mind that cow's milk was never intended by Nature for babies. Chapin's researches in comparative physiology and biology have abundantly proved this. Therefore, the nicety of his percentage adjustment will fail unless the physician notes the physical differences between the curd of bovine and that of human milk. In this connection, as will be emphasized later in more detail, he must apply to his percentage formula the advantages to be derived from sodium citrate, cereal decoctions, whey and pancreatization[1] (peptonization). Milk must be clean. Accurate percentages will not prevent infection from a dirty milk.

Many practitioners, as well as pediatrists, have a mistaken idea as to just what percentage feeding means. I have no patience with that teaching which claims that it is a matter of importance as to whether the amount of any one of the different constituents varies a quarter or a half of 1 per cent. one way or the other. Such fine adjustment is not only unimportant, but impossible. The completed preparation, I venture to say, rarely if ever would analyze to correspond to the written formula. Nor is this necessary. Any attempt to secure this would lead to disaster and confusion and justly bring the system into disrepute. What percentage feeding means and affords is a simple and scientific way of thinking and of adapting the milk to the infant's digestive capacity. The first formula is always an experiment, and by percentage feeding any one or more of the various constituents can be diminished or increased. It cannot transform cow's milk into human milk, but with it the physician can attack rationally and scientifically that element which is responsible for the indigestion, feeling that subtle satisfaction which one experiences when doing a thing for a reason.

Though I cannot give detailed reasons, I would advise against too frequent weighing, too frequent inspection of the stools, too frequent changing of the formula, to which the two former lead, and against attaching too much importance to the presence of a few curds and some mucus and the occasional occurrence of a green stool.

The physician cannot afford to be lazy. The results and the rewards are just as great as any in medicine. He who can transform a shriveled, discolored, weazened mite into a pink, fat, laughing babe has accomplished as brilliant a thing as surgery ever did. This percentage feeding, if properly interpreted and properly applied will do more frequently than any haphazard system of feeding or patented infant food. The physician must not scorn to teach the mother the importance of details or to soil his hands by going into the kitchen and showing her how to make up the first formula and the various milk diluents. He will have an apt pupil who will eagerly follow in the lead of his enthusiasm.

II. CAUSES OF FAILURE DEPENDENT ON THE MOTHER AND ENVIRONMENT

Other things being equal, the most important thing on which a successful issue depends is the intelligent cooperation of the mother—with emphasis on "intelligent." Hysteria and meddlesome interference have no place in the therapeutics of pediatrics. The mother must choose between her medical adviser and her well-meaning but poorly informed relatives and friends and her own notions as to what is right or wrong. She must promise not to interfere, to carry out orders to the letter, to believe that black is white, or to dispense with her physician and to assume the responsibility herself. This cannot be too strongly urged on the mother of a prospective patient. To my mind maternal control is the most important preliminary. Attention to details, quantities to be fed, intervals of feeding, the time consumed in taking the milk, position of the infant while feeding, picking the baby up after feeding, cleanliness of the nipples and bottles, are all matters which make or mar a successful outcome and the blame must not be placed on the system of feeding, whatever that may be.

Environment is a potent factor for good or for evil. Proper clothing, proper cleanliness of the mouth, proper ventilation and sufficient out-door airing are essentials that cannot be neglected. Too much coddling and playing with the infant ought to be avoided. Infants should be expected neither to be amusing nor amused. A little wholesome neglect is very often the best tonic to a poor digestion. Percentage feeding cannot hope to cope with ignorance and squalor met in the home of the slum dweller any more than can aseptic surgery. The practical demonstration of a valuable and proved theory is here impossible. I have encountered many instances, however, in this class of patients in which, with patience on the part of the physician, the cooperation of the mother was obtained and with surprisingly brilliant results. Kerley has had a similar experience amongst a large number of dispensary patients and tenement dwellers in New York City.[2]

III. CAUSES OF FAILURE DEPENDENT ON THE INFANT

There are some infants who cannot digest cow's milk in any form. It is true that these cases of idiosyncrasy

1. The term "pancreatization" is used advisedly, as students and some practitioners associate the term "peptonize" with pepsin. A peptogenic milk powder contains 15 grains of sodium bicarbonate and 5 grains of extract of pancreatin. The terms pancreatize and pancreatization, therefore, explain this.

2. Kerley, C. G.: Tr. Sect. Dis. Children, American Medical Association, 1906.

are rare, and yet they do occur, and unless recognized lead to disaster. Other patients there are who possess an intolerance for fat. Whenever persistent vomiting occurs three common etiologic factors should be seriously considered, viz.; faulty hygiene, fat or sugar indigestion and congenital hypertrophic pyloric stenosis. Any one of these, alone or in combination, must be proved or eliminated. The character of the vomitus, together with the time of occurrence, associated with other symptoms, will usually admit of a correct conclusion and suggest the remedy. In these cases an easily performed and too much neglected procedure is stomach-washing.

Premature infants, congenitally weak ones, rachitic and marantic patients, all present feeding problems different from those of the ordinarily healthy bottle-fed baby and require peculiar and delicate manipulation to start them on the road to recovery. This can best be secured through careful percentage feeding, rationally applied. In this connection it must be emphasized that properly to prescribe a formula for an infant not only includes the giving of correct percentages for the case in hand, but also the ability to overcome the difficulties of digestion peculiar to the individual and the other causes of failure which have been described. It may not be amiss to discuss here the more important details of procedure when ordering the first formula, and the methods employed in meeting the feeding problems encountered in the more difficult cases.

IV. DETAILS OF FEEDING

In an endeavor to determine the infant's digestive capacity the history of every child should be carefully investigated with reference to its weight at birth, its present weight, the causes for discontinuing breast-feeding, the various foods and milk combinations which have been tried, its appetite, quantities fed and the interval of feeding, the presence or absence of vomiting, constipation, diarrhea, the color, odor, frequency and consistency of the stools together with the persistent presence or absence of curds, fat, mucus, pus or blood. The patient's physical state should be noted with special reference to nutritional changes indicating marasmus, rickets or scurvy. Trouble is rarely encountered when transferring a healthy breast-fed infant to the bottle.

In weaning these infants it is best to determine the strength of the mother's milk by analysis and then to endeavor to supply a mixture, slightly weaker, especially in protein and fat, than this analysis would indicate. Sudden weaning must be avoided wherever possible. One bottle should replace a breast-feeding for two or three days and the effect noted on the stomach and bowels; then two bottles are given, and so on until the entire breast-feeding is replaced. The various percentages are now increased in the same gradual manner until at a year, or thereabout, the infant is receiving plain cow's milk. The entire process of weaning should occupy from four to six weeks. Frequently the results at weaning are quite as good where an analysis of the maternal milk cannot be previously made. Here a formula representing percentages of protein, fat and sugar somewhat weaker than those of average breast-milk (P. 2 per cent., F. 4 per cent. and L. 7 per cent.) may usually be employed with success as the first formula.

In prescribing the correct percentage of fat no two cases can be treated alike. It is therefore difficult to arrange any general rule. Vomiting an hour to an hour and a half after feeding is a prominent symptom of fat indigestion, especially when the vomitus is sour, smelling like rancid butter. Associated with this, as a rule, are frequent green, greasy movements, usually acid in reaction and containing lumps of undigested fat. Less often the stools may be constipated, greasy, white and foul. Thus having, in a rough way, determined the infant's' fat capacity, the percentage is decided on. It is best to commence with 1 per cent. to 1.5 per cent. and gradually to increase the amount as tolerance is established. The quantity should never exceed 4 per cent. and in the majority of instances it is wise not to go beyond 3.5 per cent. Some infants cannot digest fat at all. This class of patients is becoming decidedly more numerous as our diagnostic ability increases. These babies must be fed on modified skim-milk from which all the fat has been removed, or on fresh buttermilk containing cooked wheat flour and sugar. In other cases fat intolerance can be overcome without reducing the percentage of fat by properly pancreatizing the formula. This is a valuable and too little-employed maneuver. It must not be continued too long or the very purpose for which it was used will be defeated. My own experience with it would place it among the life-saving measures to be depended on especially in extremely asthenic cases of marasmus. It must also not be forgotten that rickets and scurvy may follow the feeding, over a prolonged period of time, of percentages of fat which are too low.

With reference to the digestibility of the protein elements, particularly the paracasein (curd[3]), authoritative opinion is somewhat at variance. It was formerly taught that this, or rather the indigestibility of the curd of cow's milk, constituted the crux of the whole question of artificial feeding. Many present day authorities deny this, some, notably M. Budin of France, going so far as to feed undiluted cow's milk, with reported good results.[4]

Whichever may be right, the fact remains that curd indigestion is an existent and troublesome condition. Its prevention or correction becomes, therefore, a matter of extreme importance. A healthy new-born infant should not receive more than 0.5 per cent. to 0.75 per cent. of combined proteins. If this is tolerated the amount is slowly increased until at six months from 1.5 per cent. to 2 per cent. is given, and at the age of from ten months to one year 4 per cent. can as a rule be digested. While frequently cases are met in which stronger percentages are digested with ease and benefit at an early age, the rate of progression just detailed does not hold in the case of very weak infants in cases in which distinct curd intolerance exists, notwithstanding the age. When curded, green, slimy stools, associated with colic and irritability, or hard, dry, white movements, which readily crumble, indicate curd indigestion the initial treatment should be a purgative dose of castor oil followed by whey feeding for a few days. Whey contains about 1 per cent. soluble protein and is easily digested. Then small amounts of paracasein are added and the effect noted as these are increased. In exceptional cases it may be necessary to pancreatize the formula for a short time. By this means larger

3. The terms "paracasein" and "curd" are used as synonyms in keeping with the most advanced chemistry of the protein of milk. The coagulable protein is held in suspension by its combination with calcium phosphate and is called calcium casein (formerly caseinogen). This is changed by rennet into calcium paracasein, from which the paracasein is separated as an insoluble curd by small quantities of dilute hydrochloric acid. The earlier term for the curd was casein.

4. Cotton, A. C.: Diseases of Infancy and Childhood, p. 129.

amounts of paracasein can be taken, the danger of rickets being thereby minimized. The time of pancreatization is gradually reduced and the pancreatization omitted as soon as possible. After this the addition of some efficient digestive ferment to each bottle or to every other bottle just before feeding is an excellent aid until the digestive function has been completely established.

In many instances the curd is rendered readily digestible by the use of one or two grains of sodium citrate for every ounce of milk and cream in the mixture, as first advocated by Wright and Poynton of England, and later by Van Derslice of Chicago. The early teaching of Jacobi,[5] advocating the use of cereal decoctions as a curd attenuant, still holds good as an excellent means of rendering the paracasein easily digestible, and has received recent emphasis from the work of Chapin, who employs dextrinized gruels. The cereal decoctions provide a certain amount of starch, which, according to the investigations of Kerley,[6] can be digested and assimilated by infants as young as nineteen days. Ordinarily, barley-water made from the grain is to be preferred, either full strength or diluted one-half with boiled water. If constipation be present, oatmeal-water used in a similar manner makes an excellent substitute. My own experience with the old-fashioned flour-ball, baked to a bread-brown, grated and added to the amount of a half a dram to each bottle just before feeding has been eminently satisfactory in facilitating protein digestion. Occasionally whey may be employed as a diluent of milk, cream or top-milk, as the case might be, in order to render the curd finer and more susceptible to the digestive juices. In these cases the whey must be heated to 150 F. to destroy the action of the ferment. Beyond this point, 158 F. to 167 F., the lactalbumin will become coagulated.

Sugar is rarely a cause of trouble. The new-born infant should receive from 4 per cent. to 5 per cent. and the amount rapidly increased to 7 per cent. This is continued up to nine months, when it is gradually reduced to 4 per cent. at the age of one year. Frequent, watery, acid stools that excoriate the buttocks, associated with a sour, watery vomitus, flatulency and colic, are indicative of sugar indigestion. Besides marked wasting, a deficiency of sugar produces a subnormal temperature. Infants who are receiving too much sugar and who do not suffer from indigestion are fat, flabby and anemic and are frequent victims of scurvy and rickets. Theoretically, milk-sugar should be employed, but practically plain ordinary cane-sugar answers as well and is cheaper, cleaner and more accessible.

Any formula, however accurate in composition and however scientific in its adjustment to the infant's digestive peculiarities, must always be regarded as an artificial food. As such it must be reinforced by those elements which will cause it to approximate Nature's product in freshness, cleanliness and antiscorbutic and antirachitic qualities. The finished product should therefore be made from certified milk, should be well iced and should never be kept longer than twenty-four hours. Fifteen grains of sodium chlorid should be added to each twenty ounces of formula, and expressed beef-blood, freshly made, or orange-juice in half-dram or dram doses should be given between bottles on an empty stomach.

5. Jacobi, A.: Therapeutics of Infancy and Childhood, p. 29.
6. Kerley, C. G.: The Treatment of the Diseases of Children, p. 126.

CONCLUSION

Thus it has been shown that failures with this system of feeding depend on causes foreign to it, and that success can be attained only by studying the needs of the individual and meeting them scientifically. The strongest argument in favor of accurate feeding is that results, both immediate and remote, far excel those obtained by any other method. It is a matter of daily occurrence for the specialist to see infants with a history somewhat as follows:

Born in normal labor. Weight at birth, 7½ pounds to 9 pounds. Age, six months. Present weight 6 pounds and some ounces. Breast-fed for one week. Discontinued the breast because the doctor or the nurse considered the milk insufficient to nourish the baby properly. Placed on indifferently modified cow's milk. Continued to vomit and cry. Colicky, irritable and restless. Stools green and contain curds and mucus, or white and dry. Discontinued milk. Put on barley water, then whey and cream. Vomiting; bowels continued bad. Put on pancreatized milk. Agreed for a while. Started to vomit again. Child fed irregularly with indefinite amounts. Loss of weight continuous. Then ran the gamut of condensed milk, malted milk, and various prepared foods, and four or five able physicians, until this bit of starving, crying, vomiting, purging humanity is thrown into the lap of the pediatrist and his reputation put to the test to work a miracle!

And can he do it? Yes, in the majority of cases with the child free from tuberculosis and syphilis. How does he do it? By studying the needs of his patient and meeting them by carefully adapted cow's milk. The physician can do as well, and by doing less he does not do justice to himself or accomplish his full duty by his patient. He has learned more difficult things than percentage feeding, and the time is not yet when he is ready to acknowledge his inability to do so and leave these cases to the specialist.

CHILDBIRTH AFTER APPARENT MENOPAUSE

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C. H., a well preserved and healthy looking woman, aged 50 years, always menstruated regularly and never had any genital troubles till 15 years ago. At that time she gave birth to twins, making the number of children seven in all. About a year later menstruation returned but with considerable irregularity; and in another year it ceased altogether. Two years ago, 11 years after the cessation of menstruation, she began to feel out of sorts; she lost her appetite, had nausea and felt weak. She was examined and treated by several physicians, including myself, at various times, but her true condition was not diagnosed and she remained unrelieved. One doctor told her that she had a growth and an operation would be necessary to remove it. The others treated her for gastritis, nervous dyspepsia, etc. She began to worry over her troubles and became much emaciated, anemic and nervous.

One day she came into me and said, "Doctor, I have a cancer and I feel it move around here," pointing to her abdomen. But this time ballottement, fetal heart-sounds, milk pressed out from nipples, and other signs pointed to an undoubted pregnancy. She must have been then in the sixth month, for about 3½ months later, I delivered her of a boy of normal size and weight. About a year after this birth, menstruation returned and since appears regularly every month.

Pregnancy eleven years after cessation of menstruation is rather rare. So also is the return of normal menstruation after a cessation of thirteen years. These unusual features seem to justify reporting the case.

VEIN-TO-VEIN TRANSFUSION OF BLOOD *

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In a previous paper, dealing with the transfusion of blood in the human species, we presented a summary of the literature on this subject and a description of both the old and modern methods of performing transfusion. At the present time, the method in vogue in the performance of this operation is the direct junction of the vessels either by suture or some mechanical appliance. We intend to discuss only certain features pertaining to the operation and we offer this preliminary report, which is based on the development of a new technic, under three heads: (1) the advantages of the vein-to-vein method of performing transfusion over the arteriovenous method; (2) the indications for employing transfusion; (3) the contraindications to transfusion.

I. ADVANTAGES

The artery-to-vein method has been advocated in the last few years by investigators of the subject, notably by Crile. Anastomosis of the vessels is established either by means of a modification of Payr's original tube, or by direct suture of the vessels. Tubings of various types are also advocated, especially by Brewer.

At the best, the operation is a delicate one and should be performed with a full realization of the risk, both to the recipient and to the donor. To the recipient, the dangers incident to the transfusion are the transmission of disease, hemolysis and acute dilation of the heart. The first of these is readily eliminated by a careful inquiry for a history of syphilis or other transmissible disease, supplemented by a rigid physical examination. With regard to hemolysis, the conditions necessary for its occurrence are as yet imperfectly known, and the clinical tests proposed for their detection have not proved of much practical value. We have not, thus far in our experience, had a case of hemolysis. In the case reported by Pepper and Nesbit, obscure changes were undoubtedly present before transfusion was done.

Acute dilatation of the heart from overengorgement is a grave accident which cannot always be avoided when the arteriovenous method is employed, even by the exercise of all possible care on the part of the surgeon. As will be shown later, however, this accident is practically impossible with the vein-to-vein method of transfusion, because the principal factors in its production, namely, increased pressure and volume of the blood-stream, are eliminated.

The advantages claimed for the employment of the arteriovenous method of transfusion are: (1) that sufficient blood-pressure is obtained to introduce the blood quickly from the donor into the circulation of recipient, and (2) that the blood obtained is richer in oxygen content. On the other hand, the method suffers from various disadvantages.

1. The operation itself is beset with many technical difficulties and should not be attempted by any one who has not perfected his skill by repeated experiments on animals.

2. The size of the vessels can never be determined beforehand. Frequently, the radial artery is found to be so small that some other artery must be exposed for use. The impression of the size of the peripheral arteries which one gains in the dissecting-room is erroneous, since, in the living subject, they are of considerably narrower lumen than those observed in the cadaver.

3. The pressure and volume of the blood-stream, when the arteriovenous method is employed, are sometimes so great as to cause acute dilatation of the right heart, which is a grave complication, appearing rapidly and frequently proving fatal. It undoubtedly explains some of the sudden deaths that occur during transfusion. In Crile's animal experiments, acute dilatation was often noted, and Cole and Winthrop mention it in their work. We have observed it twice in our human cases, and for this reason, the vein-to-vein method suggested itself to us.

The technical difficulties, encountered in the arteriovenous method, of performing transfusion have led to the development of various instruments, principally modifications of the original Payr's tube. Under the most favorable conditions, even in the hands of an experienced operator attempts at transfusion will often fail, but failure in these cases is due to insuperable obstacles, such as abnormally small, or sclerotic arteries, or deep-seated vessels buried in a thick layer of adipose tissue.

In vein-to-vein transfusion, on the other hand, the surgeon is dealing with the superficial vessels, which are easy of access. Moreover, a gradual flow is obtained so that danger of engorgement and the resulting sudden dilatation of the right heart are avoided. The size of the structures and the ease of access make it a simpler procedure than the anteriovenous method. The principal advantage we suggest for the vein-to-vein method of performing transfusion, is its simplicity. There is no danger to be considered except the possible one of hemolysis.

II. INDICATIONS

The basis for classification of the diseases or acute emergencies necessitating the performance of transfusion has been previously stated at some length. In general, transfusion is employed either to save life or to hasten the patient's recovery. After severe hemorrhage, we have two conditions to fulfil; first, to make up for the loss of fluid in the patient's blood-vessels, and second, to increase the number of oxygen-carriers, (red corpuscles). The first of these conditions can be fulfilled by the injection of saline solution, either subcutaneously or intravenously. The second can be fulfilled only by the transfusion of human blood.

The indications for performing transfusion are therefore as follows: the sudden depletion of the vascular system due to grave accidents, or following operations, as in the case of severe tonsillar hemorrhage, and in hemorrhage occurring during the course of typhoid fever: hemophilia; melena; poisoning with carbon dioxid, coal-tar derivatives and other substances characterized by the production of methemoglobin; and pellagra, in which the transfusion of blood from a patient, who has recovered from the disease, has been found beneficial in a number of reported cases.

III. CONTRAINDICATIONS

It is of no value in severe infections, in the cachexia of cancer and in tuberculosis. In pernicious anemia and in leukemia, transfusion has disappointed the great expectations which the introduction of the method aroused for the cure of these hopeless conditions. Transfusion is decidedly harmful in cases of purpura hemorrhagica, and whenever hemolysis is taking place.

* From the Laboratories of Experimental Surgery in the University of Pennsylvania.
* Read before the College of Physicians of Philadelphia, May 4, 1910

The above claims are based on experiments performed on dogs. The transfusion of blood was obtained by employing veins; as jugular to jugular or better, jugular to femoral, in this way eliminating any possible negative pressure or suction. No difficulty was encountered in successfully transfusing enough blood to resuscitate a dog that was practically exsanguinated. This experiment could be repeated again and again on the same dog by clamping the donor's vessel and bleeding the recipient until practically pulseless; the clamp was then removed and the blood allowed to enter the recipient's circulation until the pulse and respiration returned to normal, while symptoms of hemorrhage developed in the donor. Communication between the veins was established by means of Sweet's modification of Payr's tubes.

In concluding, we wish to express our appreciation of the services rendered by Messrs. Burleigh, Hayward, Pitt and McElhone, undergraduates in the University of Pennsylvania.

NOTE.—After this paper had been put in type, we performed a vein-to-vein transfusion on a woman for a very severe hemorrhage following a ruptured extrauterine pregnancy. The pulse before was very weak and rapid, about 160 per minute. Five minutes after the medial cephalic of the husband was connected to the median cephalic of the wife, the pulse was much fuller and 140 per minute. After the blood had flowed thirty minutes the pulse was good, full and 120 per minute. No abnormal heart sounds could be heard.

THE CAMPAIGN AGAINST DIPHTHERIA AND SCARLET FEVER IN CHICAGO *

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These two diseases are constantly endemic in Chicago, each day bringing its quota of reports to the health department. In diphtheria and scarlet fever, perhaps to greater extent than in any of the other more serious endemic diseases which are prone to become epidemic, large cities, as a rule, demand an adequately manned contagious disease bureau and expect great vigilance and diligence of those in charge in their efforts at preventing epidemics.

Chicago until recently was wofully deficient in her safeguards against epidemics of these two diseases. In spite of repeated warnings she chose to ignore the recommendations for adequate protection and was content with the following conditions as regards diphtheria and scarlet fever.

For several years prior to 1907 the function of the health department in these two diseases had been little more than advisory to the attending physician, who practically had delegated to him the protection of the public against the spread of contagion. The physician made the diagnosis, gave the family such instructions as he chose regarding quarantine, reported the case if he chose to comply with the city ordinance, and, if he reported it, used his own pleasure about having the premises placarded, and the time of ending the case.

Because the activities and energies of the few medical inspectors were needed in fighting smallpox or in other equally urgent duties, such as antitoxin administration and intubation, the contagious disease bureau was forced to admit its inability to compel the reporting of diphtheria and scarlet fever cases, and therefore extended to the attending physician, as the price of reporting the case and cooperating with the department, the privilege of "assuming responsibility" for the prevention of the spread of contagion. By simply writing the magic word "assume" in a certain space on the reporting postal card the physician enabled his patient to escape practically all surveillance of the bureau of contagious diseases, and no warning placard was posted.

This plan of allowing the attending physician to "assume responsibility" may have resulted in an increased number of cases being reported at its inception, but in 1904, when I first became intimately acquainted with its results, I was speedily convinced that it was unpractical and not justified by existing conditions, when all other large cities of the United States, and even the majority of progressive villages in the vicinity of Chicago, were requiring the reporting of cases by physicians and the posting of warning placards.

Under this plan of "assuming responsibility" many physicians took the stand that, inasmuch as the management of diphtheria and scarlet fever cases was left to them anyway, and their course of action was the same, whether the case was reported and responsibility assumed, or the case was not reported at all, there was no reason that they should bother with reporting the case. Other physicians took the position that it was absurd for a health department to think that a physician who sees a case of contagious disease for fifteen or twenty minutes once or twice daily at the onset, and perhaps once a week during the convalescent stage, could guarantee that his instructions as to quarantine would be carried out. The physicians of this group would not put their signature to something they could not guarantee and still were not willing to placard the premises of their patients unless it was a general requirement. Another smaller group of our physicians reported their contagious cases and had premises placarded because they felt it a duty they owed the community in which they practiced that they should have knowledge of the location of all diphtheria and scarlet fever in their midst.

Under this system the laity soon came to feel that placarding was a reflection on their good citizenship, as indicating they could not be trusted to do the right thing without a warning sign on their door, while their next-door neighbor, perhaps much more reckless of life and the rights of others, had no warning sign. This feeling led them to beg their physicians not to have a placard posted, and, ultimately, to seek out that physician in the neighborhood who never had warning signs placed on the premises of his contagious cases. This sentiment among the laity helped the majority of physicians who never reported their cases, and also that large group of physicians who "assumed responsibility," whereas the small group of physicians who were doing the right thing as measured by standards set by all progressive municipal health boards found their practice curtailed with resulting financial loss. The plan of "assuming responsibility" was, in my opinion, the greatest millstone to progress that could be tied about the neck of any municipal contagious disease bureau.

By Jan. 1, 1907, the situation as regards scarlet fever was alarming and as regards diphtheria threatening. During the preceding year just closed diphtheria reports had almost doubled and more than four times as many cases of scarlet fever had been reported by about the same group of physicians who had done the reporting in previous years. This probably meant a marked increase in the number of these two diseases and that less than one-half the cases were reported, and yet delegations to

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the bureau of contagious diseases were frequent and insistent that something be done to protect their communities where localized epidemics existed. Many of the medical profession were in a measure hostile, as they had come to feel it their prerogative to have charge of quarantine and other restrictive measures. The laity, too, resisted placarding of their premises.

The bureau of contagious diseases, forced to a "do-nothing policy" for want of men, was already greatly overworked. Records were in a chaotic condition. The office force was absolutely inadequate to handle a normal situation. Unavailing had been all efforts to convince those in authority that, in many respects, a contagious disease bureau is an emergency service just as truly as is the fire department, and that to cope with contagious diseases it is just as important that a large city have a specially trained and adequate contagious disease bureau force, if lives are to be saved and financial loss averted, as it is that she maintain a well-equipped and well-manned fire department for protection of lives and property.

Early in January, 1907, the threatening epidemic of scarlet fever broke forth and on January 29 reached its height as regards the highest number of cases reported in one day, with 413 reports. Our common council finally took the situation in their own hands and speedily provided for 350 men, nearly all physicians, 100 more than the number asked for by the contagious bureau, with whom to combat the epidemic. This was largely a milk epidemic.

It was February 1 by the time these raw recruits were instructed and competent to do work that would bring results. The cases decreased almost one-half in February over January. March saw a decrease of about one-half as compared with February. By April the situation was well in hand.

During the excitement incidental to the epidemic a level-headed councilman, stimulated doubtless by some progressive physician who realized the evils and handicap of "assuming responsibility," had passed an ordinance making it compulsory and mandatory on the health department to placard all cases of scarlet fever and diphtheria. With the lessons of an epidemic fresh in memory, and with the aroused public sentiment and a united press demanding safeguards against future epidemics, the prospects for better regulations as regards scarlet fever and diphtheria were bright indeed.

THE PROBLEMS FOR SOLUTION

Some of the problems left for solution by the 1907 epidemic were the following:

PROBLEM 1.—How to keep alive the aroused public sentiment to the point where press and public would demand a properly organized and manned contagious disease bureau that should pursue as progressive, as wide-awake and as aggressive an attitude towards scarlet fever and diphtheria as it did towards smallpox. This first problem was, fortunately, completely solved when in April, 1907, Chicago was given a progressive, fearless, energetic and thoroughly competent Commissioner of Health, respected by the medical profession of Chicago, her press and public generally. The press and public, guided largely by Dr. W. A. Evans, the Commissioner of Health, has certainly demanded a live, vigorous policy of the Contagious Disease Bureau ever since.

PROBLEM 2.—What immediate safeguards were needed for prevention of future epidemics? The following had been advocated for years by Dr. Spalding, the chief of Bureau of Contagious Diseases, and seemed desirable:

A. Increased number of medical inspectors.

B. A systematic, unified field inspection service.

C. Reorganized methods of keeping contagious disease records.

D. School inspection for contagious diseases.

E. An increased office force, work better systematized, and a full day's work demanded.

F. More accurate office data as to location of cases.

A. *Increased Number of Inspectors.*—One hundred medical inspectors were asked for and secured within one month, and they have ever since been a permanent part of our force.

B. *A Systematic Field Inspection Service.*—This was obtained by dividing Chicago's 190 square miles into 100 districts and assigning a medical inspector to each district. He is made responsible for the contagion and other conditions in his district. A definite territory to each inspector makes much less duplication of work. This field work is fourfold: (1) inspection; (2) investigation; (3) vaccinations, and (4) diagnosis.

1. By inspection we mean the proper handling of a case of contagious disease regularly reported by the attending physician. An inspection implies:

(*a*) If diphtheria, a diagnostic culture, also antitoxin for patient and contacts.

(*b*) Placarding premises in front and rear.

(*c*) Establishing a strict quarantine.

(*d*) Definite oral and printed instructions to family as to quarantine requirements.

(*e*) If good quarantine is impossible, leaving a note for ambulance driver and order to hospital.

(*f*) If diphtheria, and case is to go to hospital, culture contacts.

(*g*) Leaving card of instructions for quarantine officer back of front door placard, giving him definite, concise information as to the quarantine requirements laid down by the medical inspector.

(*h*) Notification to principals of schools attended by children in building of case of contagious disease and also to principals as to who, if any, from building infected, may safely attend school.

(*i*) A complete written report to the department of each case inspected, embodying a statement of above and other facts, such as name of milkman, source of infection, school and room attended, etc.

In 1909, 49,952 inspections were made by medical inspectors. During the first five months in 1910, there were 27,693 inspections.

2. Vaccinations, in case of smallpox exposures and contacts, includes following up cases to see if vaccinations are successful and a watch for symptoms of smallpox. If symptoms develop, then prompt removal to Isolation Hospital.

3. Investigations are made of suspected cases learned of from all sources other than through the attending physician. Inspector is required to examine case carefully and if contagious, report to the department, quarantine, placard, etc.

In 1909, there were 23,141 investigations by medical inspectors. In 1910 to June 1, there were 2,216 investigations by medical inspectors.

C. *Reorganized Methods of Keeping Contagious Disease Records and Files.*—Instead of using the card-index method with a separate file of each item relating to a case, which required us to look in five or six different places before we could get complete data on the case, it was decided to use the envelope-filing method. This enables us to keep all data relating to case where we can refer to it quickly in its entirety. This change was of great value to both office force and public as to economy of time and convenience.

D. *School Inspection for Contagious Diseases.*—This is probably the most valuable single factor that Chicago has in the prevention of spread of contagion through the pupils of her 400 schools. This plan calls for a daily systematic inspection as follows: (1) A superficial routine examination of all pupils at opening of schools in fall; (2) all pupils who have been absent for more than three days before entering the class-room; and (3) any child referred to inspector by principal or teacher as suspicious.

How valuable this is in preventing diphtheria and scarlet fever is self-evident when it is explained that out of 537,599 pupils examined in 1907, 633 cases of diphtheria and contacts,

many of whom were undoubtedly "carriers," were halted at the threshold of our schools. In scarlet fever the figures are even more convincing; 1,456 cases of scarlet fever and contacts were excluded from our schools.

A summary since 1907 follows:

SCHOOL MEDICAL INSPECTION FOR CONTAGIOUS DISEASES

		Excluded			
	Examined.	Diphtheria.	Contacts.	Scarlet Fever.	Contacts.
1908	499,046	178	180	278	254
1909	647,842	47	292	189	581
1910, to June 1	262,645	14	136	92	233

E. *Increased Office Force.*—The office force was more than doubled, the work was carefully systematized and a full day's work demanded.

F. *More Accurate Office Data.*—Daily spot maps, made by months, were installed so that those in charge of contagious diseases might see at a glance the location and grouping of the cases of diphtheria and scarlet fever.

PROBLEM 3.—What measures were needed as additional safeguards against future epidemics? The following, among others, seemed very desirable and plans were laid to secure and put them into operation at no very distant date:

A. *Placarding and Instituting all Quarantine Measures More Promptly.*—To accomplish this, we go for our mail before 7 a. m., and have three clerks come one hour earlier than formerly. We sort, assign and telephone all assignments to the medical inspectors before 8:30 a. m., which is before they go out on their morning's duties. By this plan we often quarantine a case twenty-four hours earlier than formerly. We go for our mail Sundays and holidays and at once telephone out to the inspectors all diphtheria and scarlet fever cases for immediate action. This frequently means a saving of forty hours in instituting quarantine.

B. *More Strict Quarantine in Diphtheria and Scarlet Fever.*—To meet this requirement it was decided to separate the workers of the family from the patient and his attendants more completely. The plan adopted was that all adults of family who work out must live in a portion of the flat completely cut off from the patient and attendant, or if in a large house, live in a portion remote from patient and not come in contact with anyone who comes in contact with patient, or if these conditions were impossible of fulfilment, then the workers would have to room and board elsewhere or quit work and stay at home, unless they should elect to end the entire quarantine by sending the patient to hospital.

This plan works a hardship to a certain extent, but not as great as one would suppose. Very frequently the living-rooms are so arranged that by sealing one door the patient and attendant can be completely isolated from front part of flat and placards placed only on back door, so that the workers may sleep in front, but must take meals and find toilet facilities outside of premises. Our rule requires that the patient and attendant be given that portion of the house containing bath or at least toilet facilities.

To control the quarantine more effectually, a plan of espionage was devised. The disinfector is to call every other day and watch for violations of quarantine. On his first visit he removes from behind the front-door placard a card left by medical inspector for him, giving concise instructions as to what quarantine shall be demanded. On back of this card he notes the date and quarantine conditions found at each subsequent visit as well as mailing the department a separate report at each visit.

The quarantine officer is supplied with special blanks to be filled out carefully and completely in case he finds flagrant violation of quarantine, and this data is used as evidence in prosecutions. If his quarantine report is unfavorable, we determine from the statement what action is needed. As a rule, if the case is one of diphtheria with a positive diagnostic culture, we immediately send the patient to a hospital. If the case is one of scarlet fever, we also do this, if we can obtain room at Cook County Contagious Hospital. This hospital very frequently is crowded to its capacity, so we must have, then, a special police officer stationed to enforce a rigid quarantine. We have been censured for maintaining such rigid quarantine requirements, but, personally, I prefer to be blamed for some slight financial hardship to one family for the sake of adequate protection of many families rather than the reverse, which was formerly often true, namely, that mothers would call, dressed in mourning, and blame us because their children had contracted diphtheria or scarlet fever and died through the carelessness of some person, made possible through failure of the department to provide the needed protection.

C. *A Corps of Medical School Nurses.*—Nurses are an indispensable adjunct to any efficient school medical inspection service, and the forty nurses whom we have, have added fully 50 per cent to the value of our school inspection service. These nurses were obtained and put to work Oct. 12, 1908.

D. *Scientific Handling of Diphtheria.*—Dealing as we were with a disease of definite etiology, with a specific therapeutic agent, if used early, and also amenable to transitory prophylactic immunity, our Commissioner of Health early decided that we ought to use accurate laboratory information as our basis for terminating diphtheria quarantine, instead of guesswork. Inasmuch as contacts are at times "carriers" and the cause of epidemics, it was necessary that our bureau should take cognizance of them. It was finally determined to require two negative cultures on consecutive days from patient and one from each contacts before raising the quarantine through disinfection.

It was also decided that we should get contacts immunized by acting through the attending physician if possible, but if he was indifferent, then through the medical inspector. These two measures have now long been in operation. Only since January 1 have we gone a step further and insisted on a diagnostic culture supplementing the clinical diagnosis. In all cases of diphtheria in which the attending physician has not taken a culture, the medical inspector is instructed to do so. If the first diagnostic culture is negative, he takes a second one, as statistics show that from 12 to 18 per cent of throats, when a negative result is obtained at the first attempt, will give a positive result when a second culture is taken. With two negative cultures from the throat and a written statement from our medical inspector that in his opinion the case clinically was not diphtheria, we send the attending physician the following communication:

> Two cultures have been examined with negative results in the case of diphtheria reported from .....St., in person of ..... On the enclosed card, please advise us of your wishes as to the disposal of case. Should quarantine be continued or terminated now? If terminated now, is disinfection desired?

The physician replies on a card of the following form:

> Concerning case reported as diphtheria in the person of....., living at....., I hereby advise that
>
> Quarantine be { Terminated. / Continued. } And that disinfection be { Performed. / Omitted. }
>
> Name....., M.D.,
>
> Address.....

E. *Establishment of a Municipal Hospital.*—Facilities for hospitalization of diphtheria cases had long been needed, and it was decided finally that, inasmuch as we seldom had many cases of smallpox, it would be advisable to build a less expensive plant for smallpox, and take over that commodious and splendidly equipped hospital for diphtheria cases. The diphtheria hospital was opened Nov. 27, 1908. A more rapid mode of conveyance of patients to the hospital seemed a necessity, and to obtain this, an automobile ambulance for contagious diseases was procured.

F. *Better Communication Between the Municipal Laboratory and Physicians.*—To accommodate our physicians better and make the Municipal Laboratory more valuable to them, a plan for keeping culture media at all police stations was worked out, and incubators installed at eight police stations in various portions of the city. A messenger service, twice daily from the police stations to the department of health, was also instituted. The attending physician or medical inspector could hand the inoculated culture outfit to the first policeman he met. He in turn would take it to his station; the desk sergeant upon receipt of it would arrange to send it by messenger to the department of health, or else to the nearest station

with an incubator. As a rule, it would not be in the police station incubator long before the time would arrive to send a messenger to the office of the chief of police and incidentally he brought along these cultures to the health department. It was also arranged to open the municipal laboratory earlier each morning and continue it later each day, with better service also Sundays and holidays. These improved conditions together with numerous free antitoxin stations, distributed over the city, made it easy for physicians to apply laboratory methods in diagnosing diphtheria and gave them no excuse for failure to use antitoxin.

G. *Means of Making Our Health Ordinance More Effective.*—This problem was solved by having passed by the city council certain rules and regulations to supplement the existing health ordinances, which, when passed, would have the weight of ordinances. These "rules and regulations" were passed Jan. 27, 1908, and have been of enormous value to us in enforcing health measures. Of these ninety "rules and regulations" at least twenty-eight apply directly to diphtheria and scarlet fever, and nineteen others indirectly touched on these two diseases.

H. *Compulsory Reporting of Sales of Antitoxin by Druggists.*—Recently we secured a law, long wanted, which compelled a druggist to report the sale of antitoxin. This reads in substance as follows:

An ordinance passed by the city council Nov. 1, 1909, requires all persons, firms and corporations to report to the Commissioner of Health within twenty-four hours any sale or gift of diphtheria antitoxin within the city of Chicago, giving the name and address of seller, buyer and patient; also the date and hour of sale and number of bottles sold, with number of units in each.

I. *Means of Getting Diphtheria and Scarlet Fever Cases Reported.*—From the time "assuming responsibility" was abolished, this problem was recognized as of great importance and plans were made to solve it. We were all agreed that physicians were not reporting their diphtheria and scarlet fever cases as generally as they should. Gradually, however, the physicians have taken to reporting their contagious cases, until to-day this problem is less complex and of less moment than formerly. A large majority of our physicians are pleased with the present methods of the department in the management of these two diseases. The very small minority who do not willingly report their cases of diphtheria and scarlet fever, do, nevertheless, report them because they realize that if they are detected concealing or "not reporting" a case of diphtheria or scarlet fever they are put to the inconvenience and expense of defending themselves in court for violating an ordinance, with danger also of having to pay a $10 to $200 fine. If a suit is started where there has been flagrant, almost criminal, negligence on the part of the physician it is given publicity in the newspapers. Also, if a conviction is secured, additional publicity is given.

As a rule it works this way: Suit is started, if a flagrant case, and the physician notified. He comes in alone, or with his attorney, to try to get the suit withdrawn. This is refused, but, on his promise to be good in the future, he is let off with costs and no notoriety in the public press. Less flagrant violations result in a letter to the physician asking him to call at the department and state his case, provided he thinks there are any extenuating circumstances which might cause the department to refrain from pressing the contemplated suit against him. Even this makes him trouble and elicits a promise to be good in the future. In still less flagrant violations, the department sends a form letter calling on the attending physician to make a statement in writing as to his relations with a case of diphtheria or scarlet fever said to have been "not reported" to the department.

This small percentage of physicians know that the Health Department is in earnest about demanding that they report their cases of diphtheria and scarlet fever. They fully realize that we have the public, press, charity and other organizations demanding reporting of these cases; also, 300 school principals, a small army of school and Sunday school teachers, a host of school pupils and the police department, in addition to the regular machinery of the department, chiefly the school nurses and medical inspectors, all on the lookout for and ready to report hidden cases or suspected hidden cases to the Health Department.

This changed attitude of our people in three years is astounding and it is remarkable how often we hear from some one of these sources of the existence of a case of contagion before the attending physician's report gets to the department. Many physicians, slow in reporting cases in spite of the law requiring a report within twenty-four hours, are improving in this respect for the very reason that they fear that we will get the report from outside sources first, which will put them in the attitude of trying to conceal the case.

Another factor that makes for reporting of cases by the attending physician since school inspection was established, is the difficulty in concealing a case if there are school children in the family, as these children often tell of sickness at home and this leads to an investigation of the nature of the sickness by the school inspector.

If the patient is a school child, detection is still more certain when the medical inspector looks up absentees reported by school teacher as sick at home with sore throat or rash. Even if the case is not investigated, and after recovery the child tries to reenter school, the medical inspector then reviews the nature of the illness and if there are suspicious circumstances about the case, he sends the child home and goes to the home and makes a thorough investigation.

If facts warrant it, the child is told to bring a written statement from the medical attendant that illness was not of a contagious nature. More than once we have confronted a physician with his written statement that there was no contagious disease present, when he had used antitoxin, and the culture from a reddened throat showed the presence of the Klebs-Loeffler bacilli. A grilling for a physician under these circumstances, together with inconvenience caused him and his patient, makes him a convert ever afterwards to that group who report their contagious cases. Many physicians formerly crawled behind the excuse that it was only a suspicious case, that no positive diagnosis was made and, therefore, not reported. To prevent the obvious abuse of this plea, Rule 4 was added to our rules; this reads: "It shall be the duty of the physician who suspects one of the above named diseases, to report it as a suspicious case. Such cases will not be placarded or removed unless a warranting diagnosis is established. A corrected report of the case shall be made by the attending physician as soon as the diagnosis is made."

Another factor in inducing the physician to report is that the department learns of the name and address of the patient and the attending physician in every case in which the state of Illinois furnishes free antitoxin within the city limits of Chicago; also the law that if the physician or family buys antitoxin, the druggist is compelled under penalty to report at once to the Health Department such sale, giving names and addresses of patient and the attending physician.

All reports from state and druggists are looked up in our files and if the case is not regularly reported by the attending physician, an investigation by the medical inspector is made. Our index envelope records of physicians who do not report or coöperate fully with the department is often of value. If a physician gets into trouble with the department over not reporting a case, he invariably makes the plea that it is his first offence, and that, heretofore, he has always coöperated with the department to the fullest extent. Often we can meet this plea with documentary evidence of from two to ten instances in which he has not complied with the law as regards the minor contagious diseases. We estimate that we are now getting reported about 95 per cent. of all cases of diphtheria and about 93 per cent. of all scarlet fever attended by physicians.

METHOD FOR HANDLING LOCAL EPIDEMICS

DIPHTHERIA

The following is a good illustration of procedure in diphtheria:

A public school known as the McCosh Branch, consisting of four large school-rooms and one small class-room, had been remarkably free of all contagion from the time

school opened, early in September, 1909, and in this district no case of diphtheria had occurred in any family whose children attended this school.

On Nov. 1, 1909, three cases of diphtheria suddenly appeared in this district. On November 2 two more were reported and on November 3 three more cases. November 4, 5 and 6 each brought three cases reported among pupils of this branch. The evening of November 3 I communicated with Dr. G. M. Cushing, our medical inspector for that district, and instructed him to watch this situation, even if he had to neglect other schools. He stated that two factors were common in these cases. The patients all had the same milk-supply and all attended the McCosh Branch school. On November 4 a double investigation of the milk-supply by the medical inspector and food bureau excluded that as a cause. Dr. Cushing then took cultures from the throats of all the children in the school. November 4, 112 cultures from pupils of the three large rooms were sent to the municipal laboratory and on November 6 seventy-nine were sent in from the remaining pupils of this school.

The laboratory on November 5 reported that eight of the 112 cultures showed presence of Klebs-Loeffler bacilli. On November 6 the laboratory reported one positive result among the second lot of seventy-nine cultures submitted. All nine of the pupils with positive culture results were excluded from school, together with other children in these families. The entire school building was thoroughly disinfected. The school was not closed, although two or three delegations of excited parents demanded it. It is the policy of the bureau not to close schools; we believe in getting the pupils with contagious diseases out of school and then keeping the well children in school, where we can observe them daily.

Among the 112 which were examined and from which cultures were taken was one throat so suspicious that this child was sent home at once. The medical inspector followed soon after and found the following conditions, if my memory serves me right:

One child was dead with malignant diphtheria and two others gave unmistakable evidence of beginning diptheria. The dead child had been attended for a week by a physician who had failed to recognize the nature of the malady, had given no antitoxin, and had permitted four children of the family to attend school. Another physician, called in as the child was dying, recognized the probable nature of the disease, used antitoxin, and no more deaths resulted.

Out of seventy-nine throats which were examined and from which cultures were taken on the second day was one so suspicious that the medical inspector took the child in his automobile to its home, with the intention of advising the parents to call their physician. On arriving he found an older brother, recently employed as a delivery boy for a near-by grocery, who had been sick for a week complaining of his throat. Examination showed a well-marked case of diphtheria. A sister, thoroughly exposed, was visiting in a near-by suburb, and when the medical inspector went to the address given he found her with a slight sore throat and brought her home.

A physician was called, positive cultures obtained, and all received antitoxin. Three of the four patients recovered, but the older brother developed a typical diphtheric paralysis and died on November 21.

Investigation in the homes of the other pupils whose culture gave a positive result revealed diphtheria clinically in one of these pupils, and when cultures were taken from the throats of the members of the family a positive result was obtained from the mother, with a history of a probable mild diphtheria recently. The family physician reported and quarantined this family on November 6.

A second family called in a physician and the case was reported and quarantined. The remaining five, when visited, gave no evidence of diphtheria and members of the family, when cultures were taken, gave no positive result. Each child with positive cultures but no symptoms was immunized and placed under quarantine until two negative cultures were obtained, when he was readmitted to school.

Absentees from school were visited and cultures were taken, but no cases were found. After excluding the above cases on strength of laboratory findings not another case developed from these foci of infection in that school or in the district after November 9, and that little epidemic was at an end as soon as these cases terminated. This case is selected because of the small size of the school and the fact that it illustrates the various remedies used in combating diphtheria epidemics.

I know of no better illustration of the great value of laboratory methods. The laboratory told us accurately and quickly that the nine pupils in that school were a menace to 190 others. This elicited my admiration almost as much as did a demonstration a few years ago by Dr. H. Spalding, who, by inspecting the vaccinal status, was able to say which six of 250 people, thoroughly exposed for several days to smallpox in an institution, would contract smallpox; the six he picked out, and no others, did develop this disease.

SCARLET FEVER

The following, in a small way, shows the method of combating scarlet fever:

A neighbor complained to me that a child was attending a public school from a home where he believed there was scarlet fever. Our spot map showed a great many cases in this immediate neighborhood. The medical inspector of the district was asked to investigate the complaint, and found a child with scarlet fever in this home and no medical attendant. A child of the family in the "peeling" stage was found, not in the public school, as reported, but in a parochial school. A careful inquiry elicited the following: This child was sick at home for a week and then returned to school with a statement that he had been ill with a cold. The sister in charge, instead of having him examined by the school medical inspector, permitted him to enter the class-room without such precaution. The history was so typical of scarlet fever that no inspector could possibly have overlooked the diagnosis. Thirty-nine cases of scarlet fever occurred among the pupils of that school, due to failure of this school, in this instance at least, to live up to the requirements.

A plan of control given a trial in connection with the cases quarantined during this little epidemic worked so admirably that it was later attempted on a much larger scale. The plan was this: A disinfector was detailed to call daily on the thirty-nine patients under quarantine and make them all take precautions against spread of contagion. Incidentally he disinfected premises whenever one of these cases terminated. The following extract of a letter written by me Feb. 18, 1909, to the medical inspector of this district shows the success in limiting the contagion to the original cases infected:

On January 30 we put a disinfector in your district to watch the thirty-nine cases of scarlet fever and to maintain a strict

quarantine. Since then no new cases have developed and all but twelve of the old cases have terminated. It is necessary to remove the disinfector to some other district. Please visit each of these remaining cases daily until terminated. See if you cannot prevent a new case occurring from any of these.

The following is another illustration of what can be done in efforts at prevention. A number of small children were exposed to scarlet fever in a nursery. These children were all in their homes before exposure was known to the health department. The name and address of each was secured, the family advised of the exposure, and each was kept under close observation by the medical inspector of this district during the period of incubation. In this way any cases developing were promptly recognized and placed under early quarantine.

The figures given in the accompanying tables seem to indicate a marked increase in the number of cases of diphtheria and scarlet fever in Chicago in the last two years.

TABLE 1.—CASES OF SCARLET FEVER REPORTED TO THE CHICAGO DEPARTMENT OF HEALTH FROM JANUARY, 1904 TO MAY, 1910

	1904.	1905.	1906.	1907.	1908.	1909.	1910.
January	215	109	458	3058	473	881	688
February	197	103	383	1741	438	590	671
March	189	94	478	894	416	644	692
April	167	85	527	562	354	587	600
May	106	71	513	421	301	455	...
June	91	72	489	315	287	382	...
July	41	57	284	276	203	261	...
August	42	52	213	242	173	216	...
September	45	41	270	270	297	342	...
October	84	79	369	291	608	514	...
November	129	145	519	341	841	684	...
December	110	198	586	445	914	686	...
Total	1416	1106	5089	8856	5305	6242	2651
Deaths	143	79	493	715	398	360	131
Per cent	.101	.071	.097	.081	.075	.058	.049

TABLE 2.—CASES OF DIPHTHERIA REPORTED TO THE CHICAGO DEPARTMENT OF HEALTH FROM JANUARY, 1904 TO MAY, 1910

	1904.	1905.	1906.	1907.	1908.	1909.	1910.
January	313	262	475	923	417	745	468
February	245	217	339	690	401	522	443
March	172	189	348	491	379	522	470
April	143	193	273	355	233	483	527
May	123	140	301	293	254	378	...
June	152	144	272	259	306	320	...
July	127	152	229	186	255	268	...
August	130	110	181	212	251	223	...
September	150	249	286	337	341	327	...
October	290	438	530	521	788	550	...
November	376	461	613	563	880	719	...
December	384	346	610	508	934	601	...
Total	2607	2901	4457	5338	5439	5658	1908
Deaths	395	426	574	536	564	675	253
Per cent	.151	.147	.129	.100	.104	.119	.132

We believe, however, that there have been no more cases in Chicago for the past two years than in 1904 and 1905. We are convinced that the cases are reported much better than formerly and that this accounts for the large apparent increase in the prevalence of these two diseases. Our reasons for this conviction are as follows:

1. Instead of a small group of physicians formerly on our records as reporting contagious diseases we now have hundreds of names of physicians not formerly in evidence there.

2. Figures show that the increase has been less in diphtheria than in scarlet fever, and this was anticipated, as diphtheria was always better reported than scarlet fever, because physicians could not well avoid reporting those cases in which they obtained free antitoxin and free examination of positive cultures at the municipal laboratory.

3. The increase in both diphtheria and scarlet fever reports has been about what we expected, as our machinery for compelling reporting has gradually improved.

4. We do not get one-tenth of the complaints we did in 1904 and 1905, accusing physicians of concealing cases.

It has always seemed to me that a comparison of death-rates for different years on diphtheria and scarlet fever is subject to great error. The virulence of the particular strain of micro-organism causing the disease often varies so greatly from year to year that there are bound to be marked fluctuations in the death-rate, just as in smallpox.

The physician who conceals the diphtheria or scarlet fever patient until dead will rarely certify the correct cause of death, and in my opinion many of these patients were formerly buried as dying of non-contagious diseases.

We do not get as high a percentage of cases of scarlet fever reported as in diphtheria and we are still greatly handicapped by not having a municipal hospital for scarlet fever. How badly we need this hospital is shown by the fact that in the past five months we have had 280 patients with scarlet fever in Chicago who were willing to go to the hospital, or else quarantine conditions were such that the patients should have been forced to the hospital.

Our requirement for period of quarantine in scarlet fever was formerly six weeks. We now send our disinfector in one month, if the attending physician requests it. Occasionally we send him even a few days earlier than this, if the doctor furnishes us a written statement that he has inspected the patient carefully and is positive that desquamation is complete and no complications present. Our Rule 24, which says, "Physicians representing cases ready for house disinfection when they plainly are not ready will be prosecuted," prevents abuse of written special requests for early termination of scarlet fever quarantine by disinfection.

To our surprise, we find the percentage of cases as "peeling" no higher than when we held to a six-weeks period before sending to disinfect.

CONCLUSIONS

1. Chicago has made enormous strides in management and control of diphtheria and scarlet fever since 1907.

2. Safeguards against extensive epidemics of these two diseases are as complete and effectual as can be obtained at the present low per capita cost.

3. The department receives reports of almost all cases of diphtheria and scarlet fever seen by physicians.

4. School inspection, strict quarantine and hospitalization are the three most valuable assets as municipal safeguards against epidemics of these two diseases.

5. A campaign against diphtheria and scarlet fever to give results must be a daily, continuous and ceaseless battle.

100 State Street.

Sleeping-Sickness.—Professor Ronald Ross and D. Thomson have studied a case of sleeping-sickness in the former's Liverpool clinic for a period of seventy-three continuous days by precise enumerative methods and reported to the Royal Society, June 16 (*Nature*, June 23), the discovery of a regular periodic increase and decrease of the parasites in the blood. A variation from time to time had been previously observed, but the regular periodicity of their increase in every seven or eight days, observed by Ross and Thomson, seems to have been overlooked by other observers, probably owing to insufficient methods of counting.

WHAT CAN HEALTH DEPARTMENTS DO TO CONTROL SCARLET FEVER?*

C. HAMPSON JONES, M.D.
BALTIMORE

My attention was first attracted to the question by observing the marked contrast in the tracings of the cases and deaths due to scarlet fever and diphtheria in Baltimore. The record of cases reported of such diseases was available for only a few years, commencing with the year 1891 and ending with the year 1909, making a period of nineteen years.

Previous to 1891, the death-record alone gives us any information, and this has been reproduced in the tracings for the two diseases as far back as 1875, when our burial law requiring death certificates to be filed at the health department went into effect.

DIPHTHERIA

If, now, we consider the tracing for diphtheria (including croup) we find the number of deaths in 1875 was 238, which increased almost steadily to 929 in 1882. Then the number decreased year by year until the low number 206 was reached in 1889. Again the death-line rises year by year until 428 deaths are recorded in 1892, which was almost equaled in 1898 with 412 deaths, since which time the death line has decreased steadily until 1908, when only 64 deaths occurred. This decrease in the number of deaths of course was directly due to the free distribution of diphtheria antitoxin, which was commenced in 1895, but the use of this curative agent did not become general until 1898 and 1899.

The "case" line for diphtheria commences in 1891, when 1,031 cases were reported; it then fell, out of proportion to the number of deaths, to 346 cases in 1893; then it began to rise and in 1897 raised to 1,620 cases, which was 967 cases more than the year before, and continued to rise until 2,077 cases were recorded in 1898, since which time the number has decreased each year, with three exceptions (when there were 1,858, 1,461 and 1,172 cases respectively) until the low mark of 756 cases was reached last year.

The increase of recorded cases beginning in 1895 and ending in 1898, was undoubtedly due to three causes:

1. The return of the natural increase.
2. The opening of the Health Department Laboratory.
3. The distribution of free antitoxin.

The first cause probably has as a prime factor the increase of non-immunes.

The second cause was the use of the laboratory to assist in diagnosis, thereby acquainting the department with many cases that might not have been reported otherwise.

The third cause induced the people to submit more rapidly to the placarding of their houses in order to obtain speedy relief, thereby again increasing the number of reported cases.

The decrease of recorded cases since 1898, when there were 2,077 cases, down to 756 in 1909, was due to the following factors:

1. Free antitoxin.
2. Throat inspections by cultures taken by the health department before fumigation.
3. House placarding (commenced in 1898).
4. Fumigation.
5. Semiweekly notification of school teachers of cases, with instructions to keep other children of the same house away from school.
6. Permits to return to school issued by the department only.

The number of reported cases, while showing a steady decline, yet remains higher than the number previous to 1898, due, we believe, to the fact that the use of the laboratory and the free antitoxin insures now the reporting of all cases of diphtheria, which did not formerly occur. Indeed, we have good reason for believing that many cases reported as diphtheria are not that disease.

SCARLET FEVER

Scarlet fever tracings are considered for the same number of years as the diphtheria tracings, and under the same conditions; i. e., the death line, commencing in 1875, and the case line in 1891.

Owing to the discovery of certain clerical errors in records previous to 1891, one should not place absolute confidence in the correctness of this scarlet fever "death" line, but there undoubtedly was, from 1875 to 1909 inclusive, a corresponding reduction (but probably not to the same degree) in the death-rate due to scarlet fever per 1,000 inhabitants in Baltimore, as occurred elsewhere. This reduction is shown in Table 1, originally published in a paper by Dr. Sidney Davies, which gives the record of the scarlet fever death-rate in London:

TABLE 1.—SCARLET FEVER DEATH-RATE IN LONDON PER 1,000 POPULATION

Year.	Death-Rate.	Year.	Death-Rate.
1861-1870	1.13	1895-1900	0.14
1871-1880	0.60	1901-1905	0.11
1881-1890	0.33	1906	0.11
1891-1895	0.24		

The probability that such a reduction in the death-rate per thousand of population is indicated by the small number of deaths in Baltimore due to scarlet fever from 1885 to 1909, inclusive, during which time the number of deaths varied from 85 to 11, except in the years 1891, 1892 and 1904, when there were 138, 258 and 143 deaths respectively.

The case-rate per thousand population, however, does not show so satisfactorily and we do not find any indication of a control of the number of cases such as is shown in the diphtheria record.

Commencing with 1891, the number of cases of scarlet fever reported each year was as shown in Table 2:

TABLE 2.—NUMBER OF CASES OF SCARLET FEVER IN BALTIMORE

1891	1,512	1898	588	1904	1,212
1892	2,713	1899	434	1905	615
1893	406	1900	402	1906	577
1894	999	1901	391	1907	436
1895	775	1902	480	1908	1,312
1896	694	1903	1,224	1909	456
1897	928				

In studying this "case" line it must be borne in mind that some reduction in the number of cases reported since 1898 is due to the placarding of houses and to the school reports, because in 1898 we commenced to placard houses and added from time to time new regulations, and now we make the following requirements:

1. Placarding of houses.
2. Semiweekly reports to school teachers excluding all children in the infected house until released by the health department.
3. Fumigation.
4. Health department certificates permitting children to return to school.

Inasmuch as we have no counteracting influence, such as the giving out of a free antitoxin practiced in diphtheria, that would tend to reduce the reporting of all cases of scarlet fever, there probably are many cases not reported.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

These four regulations, however, seem not to produce any lasting control, as evidenced by the "case" line from year to year. It is no doubt true that the regulations lessened the total number of cases each year, but not to such an extent as to warrant us in believing that they would prevent another epidemic like that which occurred in 1892.

The case-rate per thousand population in Baltimore during the past nineteen years was as shown in Table 3.

TABLE 3.—SCARLET FEVER CASE-RATE PER 1,000 POPULATION IN BALTIMORE

Year.	Case-Rate.	Year.	Case-Rate.	Year.	Case-Rate.
1891	3.10	1898	1.19	1904	2.28
1892	6.04	1899	.86	1905	1.12
1893	.86	1900	.79	1906	1.04
1894	2.06	1901	.75	1907	.77
1895	1.64	1902	1.91	1908	2.39
1896	1.45	1903	2.32	1909	.79
1897	1.91				

It appears also from this table that no real control of the disease exists.

As far as I have been able to compare other American cities with Baltimore, it is noticeable that in them also is the same want of control of the number of cases, even in those cities where the hospital accommodations for scarlet fever is provided and to a great extent used by the public. In this connection it is interesting to note that even in London, where it is said that nearly 90 per cent. of all cases are cared for in hospitals, there is a similar want of control. Table 4 is taken from Dr. Sidney Davies' article:

TABLE 4.—SCARLET FEVER CASE-RATE PER 1,000 OF POPULATION IN LONDON

Period.	Case-Rate.	Period.	Case-Rate.
1891-1895	5.3	1900-1905	3.6
1895-1900	4.4	1906	4.3

It would seem, therefore, that something more is needed than the four regulations above cited in common use in our cities, and the hospital isolation practiced in a few of them.

It is well known that the case mortality in scarlet fever during the last twenty-five years has been markedly less than in the previous years. In London this has been noticed since 1860, and this decrease in the mortality has been attributed to the improvement in sanitary conditions; but there has not been a corresponding decrease in the number of cases, although great reduction in the number has been produced by notification and isolation. It cannot be doubted that if notification and isolation were more rigidly carried out by physicians and health officials, a much greater reduction in the number of scarlet fever cases, or in other words, better control of the fever could be effected by health departments.

Why is it that a greater percentage of the cases are not reported? The following reasons may be given:

1. Mildness of attack, which results in many cases not being correctly diagnosed, and in many cases not being seen by physicians.

2. The opposition to house placarding among patients and their families for selfish reasons. Because of this opposition physicians do not report cases when they have doubt as to the correct diagnosis, and they give their patrons the benefit of that doubt.

3. The length of time a house is placarded or quarantined for each case. This difficulty is a serious one from the family's standpoint and we need very much enlightenment as to the length of time a patient is dangerous to others after the fever has disappeared.

If these difficulties are successfully overcome and proper isolation maintained, it is reasonable to believe that not only will epidemics be prevented, but the number of cases will be kept at the minimum.

To overcome the first difficulty, i. e., the "mildness of attack" two things at least are necessary—(1) proper instruction of the public; (2) proper training of physicians.

The Proper Instruction of the Public.—The method of giving such instructions will vary in different places, but the knowledge to be imparted consists of essentially two fundamental principles; (*a*) that scarlet fever, like all infectious fevers, may vary widely in severity, from an apparently simple sore throat to the so-called fulminating form producing death in a short time; (*b*) that all sore throats are communicable. We know of course that this is not strictly true, yet for practical purposes it makes a good working basis for the prevention of spreading disease.

The Proper Training of the Physician.—This consists, first, in an opportunity when a student to study clinically all so-called minor infectious diseases. A municipality should therefore not only make provisions for properly equipped hospitals for infectious diseases, but also should afford ample facilities for the instruction of students, because in the end the people are the gainers, not only by return to them of able physicians to treat such diseases, but also physicians who will more readily recognize such diseases in their milder forms.

The second difficulty, i. e., house placarding, is one that is at once overcome when all physicians are made to believe that in the end they are gainers by reporting scarlet fever promptly. Is it not true that there are but few physicians who do not dread being called on to care for such patients, and in consequence of such feeling are apt in one way or another to neglect them, thus causing increased danger to the patient and others.

The third difficulty, i. e., the length of time a house must remain placarded, is one that can be overcome only by more exact knowledge concerning the length of time that the scales of desquamation remain infectious. Until the germ of this disease is found it is impossible for department laboratories to assist the physician in raising the house quarantine until the desquamation has ceased, which frequently is prolonged to four, six, eight and even ten weeks. This long quarantine necessarily produces much hardship, especially to the poorer people who can least afford it, and also promotes ever-increasing carelessness as the weeks go by because of the difficulty of segregating children who are perfectly well although peeling and presumably dangerous to others. Dr. S. G. H. Moore, D. P. H. Medical Officer of Health, Huddersfield, in a paper on the subject[1] advocates the disregarding of the state of desquamation if all affection of the mucous membrane of the nose and accessory cavities has disappeared. By following this suggestion he reduced the duration of stay in hospitals from an average of 44.3 days to 29 days. His views in the discussions of his paper were antagonized by many, who, however, did not present facts to show how long the squamæ are infective. If, however, the desquamation period is dangerous throughout its entire length, or only in the earlier stages, it is important that all should recognize that the very mild cases of scarlet fever frequently show no desquamation even until near the end of the third week after the elevated temperature has disappeared. If the germ of

1. Public Health, London, 1908, xxi, 148.

the disease is in the squamæ of epithelium, it is obvious that the use of antiseptic baths during and after the febrile stage in all cases is indicated so that the danger may be reduced to the minimum should the quarantine be accidentally removed before desquamation has ceased.

All the difficulties that have been presented in this paper have, I fear, too much influence on health departments and cause them to exercise supervision over scarlet fever with much less enthusiasm than they do over diphtheria. I believe, however, that health officers can control the disease much more effectually under the following conditions:

1. If they endeavor to instruct the people through every channel of education that their protection for the present lies mainly in their own efforts; that they must consider all sore throats as dangerous to others; that the danger lasts during the entire period of desquamation; that this danger is lessened by antiseptic baths; that the infection of air-passages and accessory sinuses frequently continues longer than the period of desquamation; that isolation is the only means of preventing the spread of the disease.

2. If they urge not only the establishing of municipal hospitals for scarlet fever, but also advocate the early removal of all cases of the disease to it wherever proper isolation cannot be successfully established at the patient's home.

3. If they urge on the people correct information concerning the serious results, such as deafness, endocarditis, nephritis, etc., of even mild cases of scarlet fever.

4. If they urge on medical teaching institutions that medical students should not be granted diplomas until they have studied cases of infectious diseases under competent instruction.

2529 St. Paul Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RAWLINGS AND JONES

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: I think that boards of health and public health officials lay entirely too little stress on the proper observation of scarlet fever cases at the end of quarantine and on proper inspection of the oral and aural passages. For a period of years when I had charge of the Municipal Hospital in Philadelphia we watched carefully the cases that were discharged and never had return cases come from homes where patients had gone that still had some desquamation about them, provided the nose and ears were healed. I believe that as a practical working basis it is well to continue quarantine until desquamation has about ended. In every case coming to the hospital after a previous case had been returned to a home we were able to find either a discharging nose or running ear in the discharged case. I am inclined to agree entirely with Cameron (who made a most important study in London of "return cases," publishing a splendid report covering 120 or 130 pages on the subject), that the peeling skin after a month of illness is not dangerous to the public. Nasal discharges and ear discharges are highly contagious a month after illness.

I wish we knew more of the methods of dissemination of scarlet fever. There must be some epidemiological factor that influences the prevalence of the disease as well as influences its death rate. Certainly it is true, if we study morbidity rates and mortality rates over a period of years, that we will find intervals of rise and fall, just as we find unusual prevalence of variola at intervals of about ten years. Some unknown influence permits it to get a foothold and some unknown influence changes its virulence.

DR. H. W. HILL, Minneapolis: I would like to suggest, with regard to the infectiveness of scarlet fever scales, the possibility that the scales of the hands, since they get on them the discharges of the throat, may be infective by direct carriage of the mouth discharges, while scales not so infected may be—probably are—harmless.

DR. H. DELAMATER, Kansas City, Mo.: We started our medical school inspection this year with a limited number of inspectors, and the medical inspection of the public schools had a great deal to do with suppressing the epidemic. We had, I believe, in one month 123 cases of scarlet fever. In a territory which comprises several nationalities, there were about 7,000 school children. It was found impossible to make physical examination of all the children as we started to do. We could not successfully do so and keep track of the number of scarlet fever cases that would develop. Instead, when a teacher or principal of a school would report to one of the inspectors that little Johnny Jones had been absent from school for three or four days, the inspector would at once visit the home and inquire why the pupil was not attending school. Investigation proved in many instances that it was a well-developed case of scarlet fever that had never been reported to the health department.

The medical inspector would call up the attending physician and inquire if he had seen the case, if so, why he had not reported it to the department of health. By constantly keeping watch over these suspected cases, in this manner we managed in four schools with about 6,000 pupils to have one school (the Washington) in which the attendance is composed largely of Hebrew and Italian children, to have only eighteen cases of scarlet fever. In another school with a population of which 95 per cent. are Italians, we had six cases, and in one parochial school we had eight cases of scarlet fever. I am convinced that in order to control the scarlet fever epidemic, a close medical inspection must be made of the public school children. I believe in cases of scarlet fever, patients suffering from nasal discharge are often released too soon from quarantine, thereby causing great danger of infection to others.

Quarantine in scarlet fever, is in my estimation, a hardship on poor people. This phase of the subject has not been given careful consideration.

If quarantine is maintained for a period of from thirty days to six weeks, the wage-earner of the family will be deprived of his daily wages and his family of its support. This would make it impossible to secure the necessities of life, unless he appealed to charitable organizations therefor. During the past winter where a release was asked from quarantine in case of scarlet fever, before the regular quarantine period had terminated, instructions were given the medical inspector to visit each case and if he found an absence of desquamation and discharge from the upper air-passages, a disinfection of the home was ordered and a release issued.

DR. R. M. WINN, Hannibal, Mo.: In rural districts where we have no bacteriologic examinations, I should like to ask how long quarantine should be kept up after diphtheria and scarlet fever? Of course, there is no scientific way of determining that without a bacteriologic examination.

DR. G. KOEHLER, Chicago: In our experience in the Chicago Department of Health we frequently find diphtheria bacilli in throats of contacts that had been immunized with antitoxin. This method alone is not sufficient to prevent the spread of disease, if it is not combined with the making of cultures.

DR. SENECA EGBERT, Philadelphia: I would call attention to what Newman has said about milk being a carrier of both diphtheria and scarlet fever. Several epidemics have been traced by Newman to milk carriers.

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: Are your inspectors permitted to release patients from quarantine if they have a discharging ear or a running nose?

DR. I. D. RAWLINGS, Chicago: One point in connection with Dr. Jones' paper. We find where we have discovered cases of scarlet fever in the "peeling" stage among the pupils in a given room at school, if the duration of the disease has been twenty-five or thirty days or more, and we expect a crop of scarlet fever, it usually does not materialize; but we do find that where a child with scarlet fever of perhaps a week's duration has gone back to school with throat and nose highly infectious, or early in the peeling stage, then we do reap our crop of cases.

Strict quarantine works a hardship to a certain extent, but not as great as one would suppose. Very frequently we can isolate the patient and the attendant with toilet facilities in the rear living rooms and by sealing a door and disinfecting the front portion of the premises, leave a place for the workers to live in front if they provide their meals and toilet facilities outside. If the family elect to send patient to hospital, they escape these hardships.

In reply to Dr. Hill's question, there was a time in Chicago when very few cases of diphtheria or scarlet fever were reported. Rather than not have reports, we thought it would be better to have a record of the case, even if nothing was done; so to obtain reports we allowed physicians to assume the responsibility of preventing the spread of contagion and did not placard, if the physician said he was willing to assume this responsibility. It did good for a time; we obtained reports and physicians were in a measure on their honor; they did their best to try to instruct families as to quarantine; but gradually there came a time when they would write in the word "assume" and forget the instruction part of it, and nothing practically was done.

As to duration of quarantine of scarlet fever, that is a mooted question. In Chicago we, as a rule, quarantine until they are through peeling and free of all complications.

We guard against milk epidemics by furnishing to the food bureau each day the name and address of the milkman in every case of scarlet fever and diphtheria. These are tabulated by weeks, and if there is found an unusual percentage of cases on any one milkman's route, the supply is immediately investigated.

DR. C. HAMPSON JONES, Baltimore: In my paper I attempted nothing concerning the methods of health departments to control the disease. I merely wished to call attention to our method and stimulate inquiry to improve by making our house quarantine method more exact.

Concerning diphtheria, permit me to say that this high point in diphtheria in the year 1898 was the time I took charge of the work. At that time the methods that were put into play seemed to produce direct results. In cases of diphtheria I do not believe there is any reason at all for an epidemic in a city where there is a good number of men in the health department to do the work.

Concerning scarlet fever, we practice what is extensively practiced elsewhere. I believe that we follow up the cases fairly well (that is, the reported cases); prompt placarding of the houses is practiced, instructions are given to the people, and the rooms finally fumigated; yet I don't believe that such methods will result in lowering scarlet fever as has been done with diphtheria, for the reason that the early conditions in the children with scarlet fever spread the disease before the department is notified. Time and again we have taken convalescent, desquamating children in the street playing with healthy children, yet there has not been a single case developed from them as far as we could ascertain. Why, I am not prepared to say.

THE RELATION OF MODERN DENTISTRY TO THE TUBERCULOSIS PROBLEM *

S. ADOLPHUS KNOPF, M.D.

Professor of Phthisiotherapy at the New York Post-Graduate Medical School and Hospital

NEW YORK

Fifty years ago there was really no dental science. The tooth-extractor of that day, picturesquely attired, with his long flowing hair, who went from town to town with a brass band and extracted teeth in the market-place, while in the majority of cases he was a shrewd business man and showman and knew human nature, very rarely had any scientific training or, if he had it, he did not apply it to his calling. The preservation of the teeth and the tedious processes of filling a cavity and doing crown and bridgework were unknown to him. He did not care to preserve teeth, and the more he extracted the more lucrative was his business.

It must be said to the glory of American achievements that dental science, the art of preserving teeth by a truly scientific method, had its birth in this country. The European dentist has for the last twenty or thirty years looked to America as the Mecca of dental science. While we physicians have gone to Europe to complete our education, the European dentist comes to America to learn the best and latest in his art. In the capitals of Europe it is the American dentist who has the élite for his clientele, and many a crowned head has an American dentist attached to his court as *Leibzahnarzt*, and in not a few European universities Americans and graduates of American colleges of dentistry are the leading teachers in this branch.

The latest and the most glorious development of American dental science is dental hygiene. It is this subject which brings me to my main topic, for dental hygiene means prevention and preservation, and these bear the closest relation to the prevention of tuberculosis.

One of the earliest, and a very frequent symptom of tuberculosis is an impaired digestion. Now, while I would not wish to say that bad teeth constitute the only cause of these digestive disturbances, if bad teeth are present, they are contributors to these pathologic conditions. Ulcerated teeth may give entrance into the bone to tubercle bacilli accidentally inhaled, or as the result of secondary infection.

Since it is impossible to control dental hygiene except among children, and, may I also say, equally impossible to teach the subject to the majority of adults, modern preventive medicine has very wisely directed its attention to the children, and of course to those attending the public schools. It has been stated that, if New York children are typical of the school children of the United States, there must be in the schools of this country 12,000,000 children having physical defects, more or less serious, that should receive attention from parents and family physicians. Of the school children in New York City and in the United States there must be handicapped by malnutrition, 41,000 in New York; 1,248,000 in the United States; enlarged glands, 5,460,000 in the United States; bad teeth, 8,988,000 in the United States; defective breathing, 7,092,000 in the United States. Dr. A. H. Merritt informs me that recent investigations have shown that no less than 95 per cent. of the children in a public school are suffering from decaying teeth.

It is not within my province to speak to-night of the manifold medical, esthetic and even economic aspects of bad teeth in children or adults. I only desire to emphasize the great need of good, sound teeth in the prevention of tuberculosis on the one hand, and in the treatment of it on the other. The child or adult having good teeth will masticate his food properly and thus digest and assimilate it to better advantage. I have already said that we cannot reach the adult population, at least not nearly as easily as we can reach the children. It is for this reason that our local health department has very wisely created a division of child hygiene, with Dr. S. Josephine Baker at its head. The first thing to do, if one wishes to accomplish anything in the line of dental hygiene among children, is to instruct

* Read by invitation at the meeting of the Dental Hygiene Conference and Exhibit at the Metropolitan Life Building, New York City, May 16, 1910.

the parents; and to this end our New York Health Department issues the following leaflet and distributes copies freely to all parents through the children:

DEPARTMENT OF HEALTH
THE CITY OF NEW YORK

INSTRUCTIONS TO PARENTS REGARDING THE CARE OF THE MOUTH AND TEETH

The physical examination of school children shows that in many instances the teeth are in a decayed and unhealthy condition.

Decayed teeth cause an unclean mouth. Toothache and disease of the gums may result.

Neglect of the first teeth is a frequent cause of decay of the second teeth.

If a child has decayed teeth, it cannot properly chew its food. Improperly chewed food and an unclean mouth cause bad digestion, and consequently poor general health.

If a child is not in good health, it cannot keep up with its studies in school. It is more likely to contract any contagious disease, and it has not the proper chance to grow into a robust, healthy adult.

If the child's teeth are decayed, it should be taken to a dentist at once.

The teeth should be brushed after each meal, using a tooth-brush and tooth-powder.

The following tooth-powder is recommended:

2 oz. powdered precipitated chalk.
½ oz. powdered castile soap.
1 dram powdered orris root.
Thoroughly mix.

This prescription can be filled by any druggist at a cost not exceeding 15 cents.

The child should take the tooth-brush and powder to the school and receive instructions from the nurse as to their proper use.

ISSUED BY ORDER OF THE BOARD OF HEALTH

To give an idea of the scope of the work of this department, let me give a summary of its work as far as dental hygiene is concerned.

The Division of Child Hygiene of the Department of Health, through its medical inspectors and nurses detailed to duty in the medical inspection and examination of school children, gives each child in the public schools a complete physical examination. This includes an examination of the teeth.

During 1909, 231,081 children were examined of whom 131,747 were found to have defective teeth.

Of these latter, treatment was provided through the dispensaries and private dentists of the city for 4,616 children, of whom 2,591 had fillings and 2,025 had extractions. Each child was thoroughly instructed in the hygiene of the mouth. Children are assembled in the schools, in groups, by the nurses and are taught the use of the tooth-brush.

These instructions are repeated at the home each time that a nurse makes a home visit for any purpose whatever. At these home visits the instructions are made inclusive, so that they may be taken advantage of by all the children in the family and especially by those who have not yet reached the school age. A copy of the above-quoted circular is given to each child in the school and left by the nurse at each home visit.

The circulars referred to are available for distribution by any agency in the city which requests the supply, and are at present in use in the schools of the Children's Aid Society and many of the other free schools of the city. This gives an idea of dental hygiene in its relation to tuberculosis as far as it can be accomplished among the pupils of our public schools.

The modern treatment of tuberculosis consists in the judicious use of fresh air, plenty of good food, plenty of good pure water inside and outside, careful regulation of rest and work and medical supervision. The proper feeding of the patient is one of the most essential factors. It cannot be done if the patient has bad teeth. It is very easy for us physicians to say to a patient when we examine him and find his teeth defective, "Have your teeth attended to." We say this daily to our poor consumptives, but I need not tell you why so many of them do not obey our instruction. There are very few free dental dispensaries in this city and the same may be said of many other cities; and many dispensaries require, and perhaps justly so, that the patient pay at least the cost of the material—amalgam, etc. We have in the greater city of New York alone from 40,000 to 50,000 consumptive poor. I do not believe that I exaggerate when I say that the majority of them need dental attention, and I know that it is a fact that only a very small minority get it. Some of our largest tuberculosis sanatoriums and hospitals in this city are without a dentist and all the dental work that is done is performed by the medical interns, and consists in extracting painful teeth. I do not believe that this is considered good dentistry in the light of modern dental science. Yet it is done every day. There are hundreds of the consumptive poor in our institutions who should have an entirely new set of teeth because they have but a very few bad teeth left; and still we say to them, "Chew your food well and eat plenty." How can we expect these patients to chew well and eat plenty of food and get well when they are thus handicapped in the most essential part of the treatment?

It was not my purpose in this paper merely to tell you of the relation of modern dental hygiene to the tuberculosis problem. I would be remiss in my mission did I not plead with you and particularly with men and women of wealth, to help us in the solution of this phase of the tuberculosis problem. One way to help is to create more dental dispensaries, and so to endow them that good work can be done, the workers paid, and the material furnished gratuitously to worthy patients. Every sanatorium or special hospital for consumptives should have one or several dentists attached to its staff according to the number of its patients, with a special well-equipped office, and an abundance of material needed for the efficacious treatment of all patients whose teeth need attention.

Here is certainly a field of true philanthopy and a splendid opportunity to serve a good and noble cause, and thus to be helpful in the attainment of that goal for which we are all striving—the eradication of the Great White Plague.

It is gratifying to note here that, following on the announcement of the Thomas A. Forsyth foundation of $500,000 for the care of children's teeth in Boston, active steps in campaigns for oral hygiene are being taken in several places. The prevention of tuberculosis and other diseases seems to be the main object of the dentists. At a recent meeting in Baltimore the State Dental Examining Board and representatives of the Maryland and Baltimore Dental Associations decided to conduct an educational campaign on the care of the teeth. An exhibition will be held in June. At Rochester, the Dental Society of that city has just voted to work in close cooperation with the Rochester Public Health Association. Similar movements are being forwarded in Lynn, Brookline and other cities.

16 West Ninety-fifth Street.

FURTHER OBSERVATIONS ON THE MILK SUPPLY OF WASHINGTON, D. C.*

G. LLOYD MAGRUDER, M.D.
WASHINGTON, D. C.

At the meeting of the American Medical Association held in June, 1907, I had the honor of taking part in the symposium on milk, held in this Section. At that time I submitted some observations on the origin and progress of the movement for the betterment of the milk supply at the national capital. Attention was called to statements made in the "Report on Typhoid Fever in the District of Columbia," [1] submitted by the medical society of the city to the House Committee on the District in 1894, and to the report of the Washington Milk Conference. This report was issued subsequently, Aug. 20, 1907, by the Department of Agriculture.[2]

Consideration of this subject is again desirable from the facts that national, state and municipal authorities have not yet fully realized the gravity of the situation; that many physicians still appear to be either ignorant or indifferent to the dangers, and that only recently at Washington, the National Association for the Study and the Prevention of Tuberculosis, in a series of resolutions regarding the pasteurization of milk showed itself loath to admit positively conclusive evidence of the communicability of bovine tuberculosis to man.

HISTORY OF EFFORTS FOR PURE MILK

Much interest was manifested in the presentations, which I made and great satisfaction was expressed that the officials and the scientific experts of the United States government had so actively joined in this movement for the improvement of the public health. I was so impressed with this reception of the work of the Washington Milk Conference that immediately on my return to Washington I sought an interview with Mr. Roosevelt, then President of the United States. At this interview I submitted the following letter:

In view of the agitation that is now going on in Europe and this country with reference to the question of the influence of milk on infant mortality, as well as the causation of tuberculosis, typhoid and scarlet fevers, and diphtheria, I would respectfully suggest that you direct the Bureau of Public Health and Marine-Hospital Service to make a thorough investigation of the milk industry in the District of Columbia from the farm to the consumer. For this purpose the Bureau should be empowered to have the cooperation of other departments of the government, and proper credit should be given for such aid.

Several foreign governments have recently ordered such investigations, and the reports are frequently quoted by writers in the United States on these subjects. These writers have expressed many divergent views.

The recent investigation conducted by the Bureau of Public Health and Marine-Hospital Service into the cause of the prevalence of typhoid fever in the District of Columbia, which report, including an examination of the milk-supply in the City of Washington, has been printed and will be issued in a few days, and the work of the Department of Agriculture concerning the milk-supply at the farms, have shown that many lives could have been saved and numerous cases of disease avoided by more careful attention to the health of the dairyman, as well as of the cows, and the handling of the milk at the farm, in transportation, and distribution in the city.

Much valuable information has been accumulated by both departments, which can be consolidated and developed so as to be utilized as a standard not only for the District of Columbia, but for the United States. This standard is very essential at the present time, and, with the facilities at the disposal of the United States government, should have equal weight with that of any other government.

It can be readily shown that much can be done to improve the milk-supply without materially adding to the cost of the farmer and thus to the consumer.

The report of such an investigation should be freely illustrated that it may serve as an educational document.

President Roosevelt had previously shown great interest in public health matters. He grasped the importance of the subject and immediately directed an investigation, which was conducted by recognized experts in the United States Department of Agriculture, the United States Public Health and Marine-Hospital Service of the Treasury Department, and Dr. W. C. Woodward, health officer of the District of Columbia.

These experts elaborated and endorsed in every particular the work of the Washington Milk Conference. Their report under the title of "Milk and its Relation to the Public Health," was issued in January, 1908, by the United States Treasury Department.[3] A revised edition was issued January, 1910, as Bulletin 56. While this publication is one of the most valuable ever issued by the government on public health, its value would have been greatly enhanced had it been submitted to a conference of writers of the various articles and the advisory board of the Bureau of Public Health and Marine-Hospital Service. Then probably the statements would have been in greater harmony and the endorsement of such a distinguished body would have added greatly to its authority.

The movement for the improvement of the milk-supply in Washington seems to have two distinct periods, one from 1894 to 1907, the other from 1907 to date. It will be desirable to recall some of the incidents connected with this movement and the results that have accrued. The progress of the first thirteen years was great; that of the last three years has been marvellous. The work done in Washington has exerted an influence not only in this country but also in Europe. In fact, its influence has also extended to Australia.

At a public meeting on Feb. 5, 1894, called for the purpose of aiding in the improvement of the sanitary condition of the city of Washington, the late Dr. Charles Smart of the army read a paper on "The Causes and Prevalence of Typhoid Fever."

The statements made by Dr. Smart were so startling and of such damaging character to the prosperity of the city that I called the attention of the Medical Society of the District of Columbia to them at the meeting held on February 7 and moved for the appointment of a committee to consider the subject. Dr. W. W. Johnston, Dr. C. M. Hammett and myself were appointed as such committee.

It was found that the conditions were even worse than Dr. Smart had represented. The committee considered that there were four principal causes for the occurrence of the disease: (a) Potomac water-supply: (b) pollution of the soil by the leakage from privies, defective sewers and the backing up of sewage from tidal movements; (c) to drinking of well or pump water; (d) drinking of contaminated milk.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Report on Typhoid Fever in the District of Columbia, submitted by the Med. Soc. of the D. C. to the Committee on the District of Columbia of the U. S. House of Representatives, June 14, 1894.

2. Sanitary Milk Production. Circ. 114 Bur. Animal Industry. Dept. Agric.

3. Bull. 41 Hyg. Lab. U. S. P. H. and M.-H. S.

Among the recommendations of the committee, which were unanimously adopted by the medical society, were the construction of works for the filtration of the Potomac or Washington water—the only method of purification—the abandonment as rapidly as possible of all wells within the city limits; the repairing of defective sewers; the extension of the water supply and the sewers; the making of house connections to these.

The views of the committee as to the unhealthfulness of well waters were fortified by the results of bacteriologic examinations of water from thirteen wells in the city of Washington, made by Dr. J. J. Kinyoun. The water from nine of these wells was classed as bad, and from two as suspicious. It was recommended that the nine wells be closed and that the remaining four be kept under observation.

The influence of these two recommendations in the committee's report was immediately noticed:

> 9. Careful inspection of all dairies in the District from which our milk-supply is drawn, and the enactment of a law by which no milk shall be sold in the District without a permit from the health office. The inspection should cover an examination at the dairies of all possible sources of infection, including the water-supply.
>
> 10. The urging on the members of the profession of a careful collation of all facts bearing on the mode of infection in each case, and the advantage of reporting such facts to the society, and the propagation of the doctrine that immediate disinfection of the stools is the first duty of the physician as guardian of the health of the community.

It will be seen that pure milk and pure water, both in the city and at the farm, and the avoidance of contact with persons suffering with the disease, were the cardinal preventive measures recommended. The importance of these recommendations was immediately recognized. The United States Congress, as well as the city authorities, sought the aid of the medical society and individual members in framing remedial legislation.

That the recommendations made in 1894 were important and proper is attested by remarks made at the symposium on the causes of typhoid fever in the District of Columbia, held, on my motion, by the medical society, Feb. 19 and 26, 1908. Dr. George M. Kober, professor of hygiene, Georgetown University, said that "every point developed in recent discussions, save the influence of domestic filters and water-coolers, had received consideration before." Dr. Kober's investigation in 1895 confirmed in every particular the conclusion reached by the committee of the medical society in 1894, and developed two new facts, viz., the percentage of imported cases and the agency of flies in the transmission of the disease. Dr. William C. Woodward, health officer of the District of Columbia, said that the problem "Why is typhoid fever more prevalent in the District of Columbia than in other communities?" was clearly the problem before the medical society in 1894, when it inaugurated the campaign against the disease, and the clear realization of the problem to be solved contributed very largely, no doubt, to making the work of that committee as thorough and the results as complete as they were." It may safely be said that, aside from the one or two new facts brought to light by Dr. Kober's investigations, to which Dr. Kober has referred, no material fact has been disclosed by any subsequent investigation that was not anticipated in the report of the medical society.

The contention for pure water, pure milk, and the avoidance of contact, outlined in 1894, as preventive measures against typhoid fever is further sustained in Bull. 44 of the United States Public Health and Marine-Hospital Service,[4] as follows:

> Thus far our studies indicate that typhoid fever will cease to be a problem in any community having clean water, an uninfected milk supply, and in which cases of the disease are treated as dangerous and contagious.
>
> In drawing up the conclusions and recommendations of this report we have had the benefit of consultation with the advisory board of the hygienic laboratory, composed of eminent scientists and sanitarians. This privilege is appreciated and we desire to acknowledge the help we have received from the members of the board collectively and individually.

The first step toward carrying out the recommendation of the committee of 1894 was the passage of an act by Congress, approved March 2, 1895, which required the inspection of all dairy farms and a permit from the health officer of the District of Columbia before milk could be sold for consumption in the city of Washington. This requirement applied not only to the farms in the District of Columbia, but also to those in the states supplying milk to Washington.

CARD REGISTRATION OF DAIRIES

About this time Dr. W. C. Woodward was appointed health officer. He instituted the registration of the results of the inspection of the farms and depots on cards known as score-cards. Washington has the honor of being the first city in the country, if not in the world, to require inspection of the dairy farms as well as the milk depots in the city.

The use of score-cards has proved to be very popular as well as valuable. Many states and cities have adopted them. The United States Department of Agriculture reports that it has supplied them to about 300 cities in thirty-nine states, and that they are being widely used. The province of Ontario, Canada, has also adopted inspectors and the score-card system of recording such inspection. Previous to January, 1908, less than 50 cities had sought the cooperation of the Department of Agriculture in instituting inspection. These figures, however, do not represent the full extent of the use of the score-card system as it has been formally adopted by the state health authorities of fifteen states, and is being introduced by them in the cities under their supervision.

This inspection has revealed many unfavorable conditions both at the farm and at the city depot. Insanitary houses, milk houses and barns were common. The attendants on the cattle were careless of their personal habits and frequently were suffering from disease, sometimes of a contagious character. Cattle were frequently found covered about their flanks, legs, udders, and tails with manure and other dirt, which readily dropped into the pails while milking was being done. Cattle were many times found suffering from constitutional diseases as well as local affections of the udder. Flies swarmed about the premises. Frequently on the surface of the milk in the pails floated dead and dying flies. With the knowledge now available of the habits of the fly, this condition alone is a most dangerous source of milk infection. Dr. L. O. Howard in a recent publication by the Department of Agriculture suggests that the common house fly be known as the "typhoid fly." The presence of sediment in the milk containers was a common occurrence. This is especially dangerous, since it has been shown that the ingredients are pus cells, blood, epithelium, barn-yard manure, and

4. Bull. 44 Hyg. Lab. U. S. P. H. and M.-H. S., May, 1908, p. 9.

varied bacteria, including colon bacilli, and, as shown by Schroeder and Cotton, very commonly the tubercle bacillus.[5]

Few, if any, facilities were found for boiling the water to cleanse the utensils used in the handling and transportation of milk, the hands of the milkers, or the udders of the cows. Polluted water readily contaminates milk. This contamination rapidly multiples at a temperature above 50 F. The knowledge which is rapidly being accumulated as to chronic carriers of the typhoid bacillus, and the common custom which prevails in rural communities of depositing human excreta on the ground, frequently in close proximity to residences, barns, and water-supplies, demand that the water-supply on dairy farms should be frequently examined and carefully guarded against contamination. The location of the premises for the storage and the handling of dairy products in the city depots was frequently most objectionable and at times entirely unfit for such purposes.

The following are some results of one year's use of the score-card system of inspection at Indianapolis:

Dairies scored, 717.
Barns improved, 381.
New barns built, 41.
Milk rooms built or repaired, 319.
Visits made by request to advise about constructing new barns or repairing old ones, 137.

The report of the official in charge says:

While at first we met with serious opposition, producer and dealer have become convinced that instead of persecution, the work is for their betterment.

Numbers have thanked us for insisting that they improve their conditions, stating that they do not see how they could have produced milk under the conditions they did.

The records of inspection as kept on score-cards show the result of intelligent inspection of the dairy farms supplying milk to Richmond from May, 1907, to May, 1908. The first inspection in May gave an average of 41.5 out of a possible 100; the inspection in April of the following year, twelve months later, gave an average of 72 for the same premises. This demonstrates a gain of nearly 100 per cent. for the year. The improvement was steady throughout this time.

In the annual report of the Richmond, Va., health department for 1908 the dairy inspector in his report to the chief health officer says: "The disposition among our dairymen to improve their plants is wonderful, and all speak highly of the work of the health department."

Washington city also furnishes an excellent illustration of the effects of intelligent inspection. The inspectors and the producer have learned to understand each other. Many of the farmers welcomed the criticisms and proceeded to remedy these defects, as it was found that much could be done at an insignificant outlay of time and money. Much higher scores were given in many cases on the second inspection. As a result of this educational inspection much milk is delivered to the distributing depots with less than 2,000 bacteria to the cubic centimeter.

At the meeting held Sept. 22, 1909, in Washington, of the Milk Producers' Association of Maryland, Virginia, and the District of Columbia, President Thomas in his address reminded the members of the association that the day was past when the milk inspector was "looked on as an irreconcilable enemy."

Such expressions show the spirit with which intelligent inspection is met. This educational inspection means much to both producer and customer. It contributes not only to the health of the families of both, but also to that of the dairy herd. It is a well-known fact that typhoid fever prevails to an alarming extent in rural communities. It has been found that it is two and a half times more prevalent in the counties of Maryland than in the city of Baltimore. Tuberculosis is also quite common in the country.

RESULTS OF INSPECTION

Inspection has worked well; it should be perfected and extended. It should be assumed by state and municipal authorities and not left to the enthusiasm of public-spirited physicians and other citizens. Washington has apparently had most satisfactory results from the requirements for inspection. Dr. W. C. Woodward, health officer of the city of Washington, D. C.,[6] says:

The death-rate from diarrheal diseases among infants during the five-year period 1880 to 1884 was 162 per 100,000. During the next five-year period it was 168, and from 1890 to 1894 it was 175. In 1895 the milk law was enacted. From 1895 to 1899 the death-rate fell to 135; from 1900 to 1904 it fell to 109, and in 1905 it was only 104, and in 1906, 1907, and 1908 only 97 per 100,000.

In 1909 it fell to 72. It is gratifying to see that 405 fewer babies died in 1909 than in 1894, the year before the milk law was passed.

The diagram that accompanies Dr. Woodward's article (Chart 1) shows the above facts graphically.

MILK AND WATER AS AGENCIES

The improvement in the death-rate from diarrheal diseases, typhoid, malarial and typhomalarial fevers has also been very marked in the period since the enactment of legislation governing the milk supply, and especially so since the active movement for its improvement started in 1907. The title "typhomalarial fever" is no longer used in the classification of diseases. It is a question if the many deaths attributed to malarial fever should not be considered as typhoid. The data of the one are similar to those of the other. Chart 2 well illustrates these observations. The rate 33.2 from typhoid fever in 1909 encourages the hope that Washington with continued improvement in its milk-supply will soon attain a much lower death-rate.

The rate in 1909 would have been lowered had the hospitals had a more nearly normal death-rate. There seems to be a connection between the death-rate and the milk-supply of the hospitals. In 1909 there were 780 cases of the typhoid reported with 114 deaths; 70 of these deaths occurred in hospitals. With the normal death rate of 10 per cent. 36 lives should have been saved.

With the limit of safety of "inspected" raw milk fixed at 100,000 the following numbers of bacteria per c.c. were found in milk furnished to Washington hospitals: 2,000,000; 2,800,000; 3,500,000; 4,000,000; 5,000,000; 10,000,000; 10,000,000; 15,000,000; 50,000,000; 111,000,000.[7]

The mortality from typhoid in some Washington hospitals reached the appalling rates of 25, 20, 18 and 16 per cent., although a few have the normal death-rate of 10 per cent. But in only one instance was the German

5. See Bull. 99 and Circ. 118, Bureau Animal Industry, Dept. of Agric.

6. Bull. 41 Hyg. Lab. U. S. P. H. and M.-H. S.
7. See Bull. 41 Hyg. Lab. U. S. P. H. and M.-H. S., p. 431, et seq.

mortality rate of 5 per cent. approached, and this was as low as 7 per cent.

It will be noticed that the highest record was reached in 1890. Two factors can be considered as causing this. Kober has attributed it to unusual contamination of the Potomac water supply by the sewage from Cumberland, Md., where an epidemic of typhoid fever prevailed in the winter of 1889-1890. I attribute it to the greater contamination of the milk-supply. This was brought about by the abnormally high temperature that prevailed during the winter. The Weather Bureau reports it as having been the warmest winter for fifty years. No ice was gathered. Consequently milk was almost constantly exposed to a temperature conducive to the growth of bacteria. It is well known that colon and typhoid bacilli proliferate rapidly as soon as the temperature goes above 50 F. May this not help to explain the increased prevalence of typhoid in winter in localities where the temperature goes repeatedly above 50 F.?

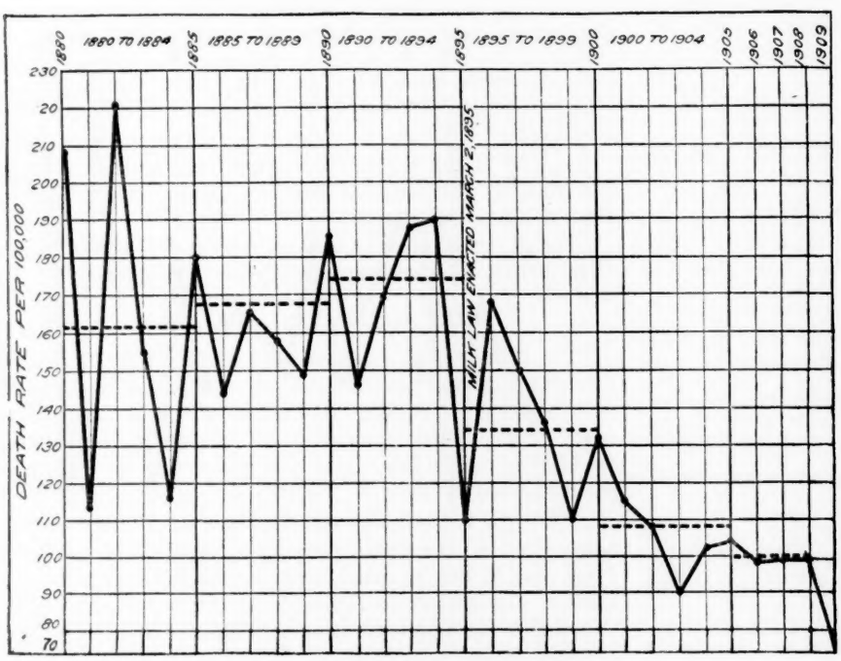

Chart 1.—Diagram showing decreasing death-rate of children under two years of age from diarrheal diseases in the District of Columbia following the enactment of the milk law of 1895. Dotted lines show averages. (In 1909 the death-rate fell to 72.)

The winter of 1889-1890, as stated, was the warmest for fifty years. The winter of 1908-1909 was unusually warm. The winter 1909-1910 was quite cold. From January to May, inclusive, in 1909 (warm winter) there were 236 cases of typhoid reported, while during the same period of 1910 (cold winter) there were only 126 cases reported.

Comparison of the diagram with the one prepared by Dr. Theobald Smith (Chart 3) on the seasonal prevalence of typhoid fever practically eliminates the Potomac water as a serious causative agent. The filtration plant now positively eliminates it, as is shown by the accompanying table. There is no need to resort to the boiling of Potomac water.

Contrary to every expectation, there was no diminution in the prevalence of typhoid fever following the completion of the filtration plant in the fall of 1905 as compared with the few preceding years. Numerous investigations were undertaken and reports made; some covered conditions in the city, and others covered both the city and the dairy farms.

RESULTS OF TEST FOR BACILLUS COLI OF 10 AND 1 C.C. SAMPLES FROM FILTERED WATER, RESERVOIR AND TAP WATER FROM VARIOUS PARTS OF THE CITY

Fiscal year.	Number samples examined.	Samples in which *B. coli* was positively determined. Number.	Percentage.
1905-6	502	8	1.60
1906-7	1,630	52	3.18
1907-8	2,232	42	1.88
1908-9	2,294	15	0.67
1909-10*	940	0	0.00

* Five months only, July to November, 1909, inclusive.

The Bureau of Public Health and Marine-Hospital Service issued three special bulletins on "The Origin and Prevalence of Thyphoid Fever in the District of Columbia." [8] From the peculiar limitations of the functions of this bureau the investigations were mainly of the conditions existing in the District—not in the outlying states.

Continued study convinced me that stricter attention must be paid to the conditions at the dairy farms, including their water-supply, to which I had called attention in 1894. I submitted these views to the Hon. James Wilson, Secretary of Agriculture, at an interview in September, 1906.

Under the direction of the Secretary of Agriculture, every one of the approximately 1,000 farms supplying Milk to Washington was inspected by the Bureau of Animal Industry in the fall and winter of 1906-7. The average score of these farms was as low as 45.03 out of a possible 100. On 60 farms, taken at random, bacteriologic investigations of the springs and wells were made by the Bureau of Plant Industry. These were the first on record of an extended series of investigations of their kind. Dr. Kinyoun did make six such examinations in 1895, in four of which he found the water-supply to be contaminated. Previously the analysis of waters was only chemical. The revelations were startling. These showed that nearly one-half of the water-supplies were contaminated with fecal bacteria and that 25 per cent. of the remainder contained many more than 500 bacteria per cubic centimeter.

The revelations of contamination are quite as astounding in other states as they have been in the vicinity of Washington. Examinations have been made in the District of Columbia, Maryland, Virginia, Massachusetts, Illinois, Wisconsin and Minnesota. The latest report,[9] by Kellerman and Whitaker, issued Nov. 6, 1909, shows that out of 79 samples of water from as many farms in Minnesota 59 were polluted, and on 23 of these farms there was a record of typhoid fever. These studies have confirmed the contention of the danger from this and other contaminations of milk.

8. Bulls. 35, 44 and 52, Hyg. Lab. P. H. and M.-H. S.
9. Bull. 154, Bureau Plant Industry, Dept. of Agric.

CONFERENCE ON MILK-SUPPLY

The investigations of the dairy farms and city depots supplying milk to Washington disclosed many alarming conditions. These were considered by the Medical Society of the District of Columbia and a number of interested citizens. I submitted the ascertained facts to Mr. Macfarland, then president of the Board of District Commissioners. Simultaneously Mr. Macfarland's attention was called to a suggestion made by Mr. E. Berliner that a conference be held on the milk-supply. This suggestion was made at a meeting held at Mr. Berliner's house, when there was a discussion of Dr. Schroeder's and Mr. Cotton's recent publication on the contamination of milk with tubercle bacilli and the significance of such contamination. Mr. Macfarland at once invited a number of gentlemen from private and official life to take part in such a conference.

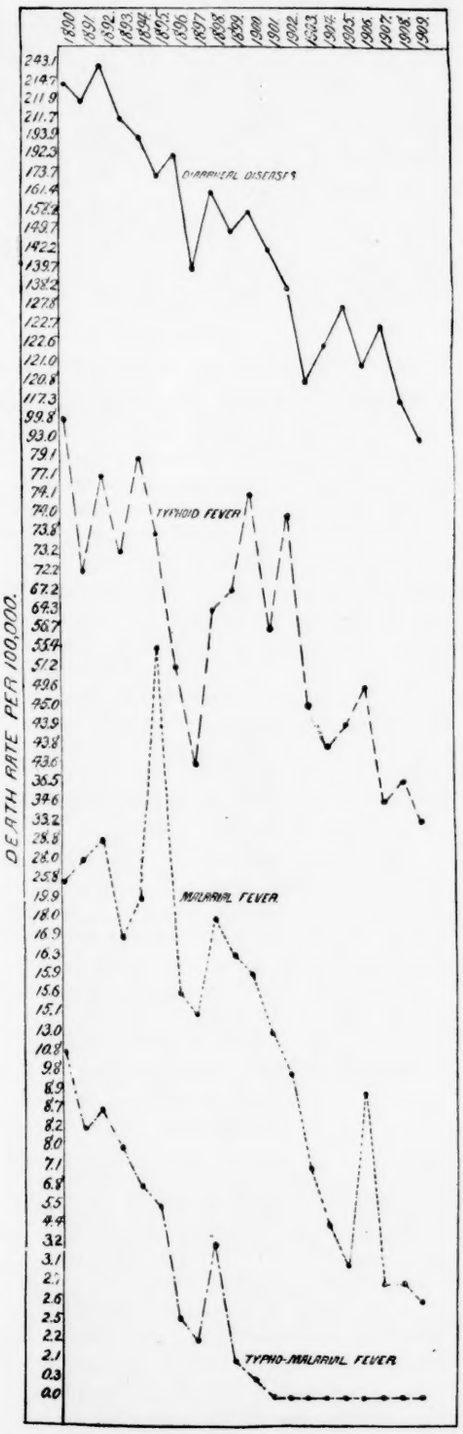

Chart 2.—Diagram illustrating death-rate per 100,000 of population for diarrheal diseases, typhoid fever, malarial fever and typho-malarial fever, during the period 1890 to 1909 inclusive.

It was shown that milk and dairy products were disseminators of disease. Repeated instances were cited of outbreaks of typhoid fever, scarlet fever, diphtheria and sore throat, as positively being traced to infected milk. The fearful death-rate among infants, directly from impure milk, was shown. Attention was also called to the danger of milk as a carrier of tuberculosis. Fortunately while pointing out these alarming conditions, the conference pointed out the methods for modifying the danger. The proceedings of the conference were published by the Department of Agriculture as Circular 114 Bureau of Animal Industry under the title "Sanitary Milk Production." The value of the report was greatly enhanced by the fact that it was issued after careful consideration in conference by all of the contributors. It demonstrated the importance of occasionally having the cooperation of official and non-official persons. This furnishes another instance of the watchfulness of the Department of Agriculture over the public health.

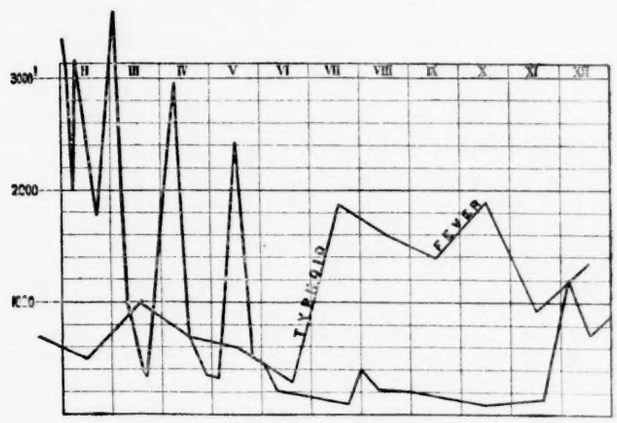

Chart 3.—Diagram prepared by Dr. Theobald Smith, showing comparative number of bacteria found in 1 c.c. of Potomac water in 1886, and also death-rate of typhoid fever during same year.

The London *Lancet*,[10] in an editorial headed "Federal Text-Book on Pure Milk Questions," says of this circular:

> The Agricultural Department at Washington has issued a volume of reports containing the results of the conference of experts called together by the department to consider the various questions now agitating the country in regard to the purity of the milk-supply. The conference consisted of thirty-five recognized experts in the study of the questions involved. This volume will be the recognized text-book of the health authorities of this country for the present, as it carries the weight of authority of these experts, and the endorsement of the Department of Agriculture. In brief, these experts agreed upon a definite milk program and have recommended that public safety should be assured by legislation establishing three classes or grades of milk—namely, certified, inspected and pasteurized.

Constant instances of serious outbreaks of diseases from contaminated milk are being reported.

The occurrence of 600 cases of streptococcus sore throat in Stockholm, traced to a streptococcus abscess in the udder of a cow with other reports of similar infec-

10. Lancet, London, 1907, ii, No. 13.

tions has drawn attention to the necessity of immediate study of the significance of streptococci in market milk.

The rapidly accumulating reports of outbreaks of typhoid fever resulting from milk infected by bacillus carriers have excited an increased interest throughout the world in the improvement of the milk supply. Dr. Biggs, like many others, has been so impressed with the danger from this source that he considers it almost impossible to secure a safe milk-supply without careful and repeated inspection, including complete and repeated bacteriological examinations of every one connected with the production and handling of milk. As a result of his report, covering this and other points, the New York City Board of Health has adopted an order requiring satisfactory pasteurization of milk used for drinking purposes.

In the fall of 1908 over fifty cases of typhoid fever in Washington, D. C., were traced to the supply of milk from a single farm. The owner was a bacillus-carrier. The supply of milk from this farm was stopped.

From the well-known prevalence of rural typhoid, the presence of bacillus-carriers, and the existence of contaminated water-supplies at many farms which can readily contaminate milk, it seems that milk is a far greater factor in keeping up the typhoid rate in Washington than a number of writers have been willing to admit. I have always contended that dairy products were the principal sources of the disease. In view of recent investigations, I reassert my position.

BOVINE TUBERCULOSIS

During the past three years extraordinary progress has been made in the study of the relation between human and bovine tuberculosis. The position of Koch that bovine tuberculosis is a negligible factor in the causation of human tuberculosis is no longer tenable.

The work of Schroeder and Cotton on this subject attracted universal attention. It was deemed to be of the greatest importance. The British Royal Commission to inquire into the relation of human and animal tuberculosis, confirmed these experiments in every particular, and so reported to the British Parliament in January, 1909, in its "Third Interim Report." Their report was based on the information obtained from these repeated experiments.

Influenced by this report the Board of Agriculture and Fisheries of Great Britain issued in May, 1909, "The Tuberculosis Order of 1909." This order provided that after Jan. 1, 1910, milk sold in Great Britain should come from tuberculin-tested cows, or should be sterilized. These two paragraphs from this order are very positive:

> As your local authority are doubtless aware, the subject of tuberculosis in man and in animals, and the relations between the disease in human beings and in animals has been under careful investigation during recent years in this country and abroad, and various phases of the question have been inquired into by successive royal commissions. So far as regards the possibility of the transmission of the disease from affected bovine animals to man, the board are satisfied that it must now be accepted as a fact that tuberculosis is transmissible by the agency of milk used for human consumption. The Local Government Board concur in this view, and a bill was introduced in the House of Commons by the President of the Local Government Board on the 25th inst. designed, *inter alia*, to afford protection to the public health from the risk of the spread of tuberculosis by the means of milk used for human consumption.
>
> In considering the question in relation to animals, the fact that the disease is communicable to man by milk has a material bearing on the measures to be adopted. Any action which results in the reduction in the number of tuberculous bovine animals in the country must reduce the risk of the spread of tuberculosis amongst the community, and if it were possible to eradicate from this country the disease in animals, a material step forward would have been taken in the campaign against the disease in man.

The accumulated testimony on the communicability of bovine tuberculosis to man was greatly accentuated in a paper by Dr. W. H. Park, director of the research laboratories of the Health Department of New York, which he submitted in Washington, May 3, at the meeting of the National Association for the Study and Prevention of Tuberculosis.

In this paper he showed that 22 out of 84 cases of tuberculosis of children under five years of age showed the bovine type of tubercle bacilli. Dr. W. H. Welch noted that the cases reported by Dr. Park were not selected cases.

PASTEURIZATION AND STERILIZATION

Even though the danger of contracting tuberculosis due to bovine tubercle bacilli from dairy products can be eliminated, if we can obtain milk from healthy cows, there still remains the danger of contracting tuberculosis, due to human tubercle bacilli and other diseases from contaminated milk. Milk can be made safe, however, by the proper application of heat. There are two terms applied to the results of heating milk, pasteurization and sterilization. These two terms must not be confounded; the former is a process that requires the application of a much lower degree of heat than is effective for the latter. Sterilization means the killing of all the germs that may be present in milk. Pasteurization means the destruction of the disease germs that are of more common occurrence in it, such as those of tuberculosis, typhoid fever, diphtheria, etc. The investigation of General Sternberg, confirmed by Dr. M. J. Rosenau, especially, have shown that the common or pathogenic bacteria are unable to retain their life and virulence when they are exposed to a temperature of 60 C. or 140 F. for a period of twenty minutes, and that the value of milk as an article of food is not perceptibly affected by the designated temperature. Professor Kastle, of the University of Virginia, after extensive investigation, concluded that the designated temperature, maintained for a sufficient time to destroy the disease germs of common occurrence in milk, has no deleterious effect on its nutritive value. Thousands of children under the eyes of careful and competent observers have been reared successfully on milk so treated without the slightest signs of scurvy or rickets. Rowland G. Freeman has recently shown that such outbreaks have been traced to mixed feeding; that milk was an insignificant factor. His observations were strengthened by those of numerous observers in Europe. There boiled or sterilized milk was almost exclusively used. The temperature required for sterilization does destroy the enzymes and impair the nutritive value of milk. This emphasizes the necessity for a proper appreciation of the processes of pasteurization and sterilization.

It must be kept in mind that the advocates of pasteurization do not countenance the use of unclean or old milk; on the contrary, they insist that pasteurization should be applied, but simply as a measure of safety against the dangers from milk which no other precautions can obviate. Furthermore, pasteurization should be practiced under proper supervision, and that form of

so-called pasteurization which is to some extent commercially practiced, during which milk is heated to an unnecessarily high temperature for barely a fraction of a minute, should be emphatically discountenanced. Health officers should be provided with properly equipped laboratories to keep constant check on the output of pasteurizing plants. Progressive men engaged in the distribution of milk, cream, and ice-cream employ skilled bacteriologists. There are two noted instances in Washington where this precaution has been taken. The rarity of typhoid fever amongst the customers using this pasteurized milk and ice-cream has been marked. All milk, whether pasteurized or not, should be consumed as soon as possible after milking.

It frequently happens that properly pasteurized milk cannot be secured on the market. The observance of the following directions for the home pasteurization of milk, by L. A. Rogers of the Bureau of Animal Industry, can then be practiced:

Milk is most conveniently pasteurized in the bottles in which it is delivered. To do this use a small pail with a perforated false bottom. An inverted pie-tin with a few holes punched in it will answer the purpose. This will raise the bottles from the bottom of the pail, thus allowing a free circulation of water and preventing bumping of the bottles. Punch a hole through the cap of one of the bottles and insert a thermometer. The ordinary floating type of thermometer is likely to be inaccurate, and if possible a good thermometer with the scale etched on the glass should be used. Set the bottles of milk in the pail and fill the pail with water nearly to the level of the milk. Put the pail on the stove or over a gas flame and heat it until the thermometer in the milk shows not less than 150 nor more than 155 F. The bottles should then be removed from the water and allowed to stand from twenty to thirty minutes. The temperature will fall slowly, but may be held more uniformly by covering the bottles with a towel. The punctured cap should be replaced with a new one, or the bottle should be covered with an inverted cup.

After the milk has been held as directed it should be cooled as quickly and as much as possible by setting in water. To avoid danger of breaking the bottle by too sudden change of temperature, this water should be warm at first. Replace the warm water slowly with cold water. After cooling, milk should in all cases be held at the lowest available temperature.

This method may be employed to retard the souring of milk or cream for ordinary uses. It should be remembered, however, that pasteurization does not destroy all bacteria in milk, and after pasteurization it should be kept cold and used as soon as possible. Cream does not rise as rapidly or separate as completely in pasteurized milk as in raw milk.[11]

CONCLUSION

If the lessons taught by these observations be heeded, a great step will be made toward the control of milk-borne infections. Dollars spent by the thousand for prevention will save millions needed for the care of those afflicted with disease, to say nothing of the days of suffering that will be avoided.

It can no longer be doubted that dairy products—and this term includes milk, cream, ice-cream, butter and cheese—are excellent vehicles for the dissemination of pathogenic bacteria. Outbreaks of typhoid fever, scarlet fever, diphtheria, sore throat, and intestinal disorders of children have been definitely traced to contaminated milk. The proofs of the danger of tuberculous infection from these products are accumulating daily. The opportunities for such infection are manifold. With the greatest vigilance on the part of trained inspectors and the greatest care on the part of the householder this infection cannot be entirely prevented. The householder also has a duty to perform to protect milk from contamination after it has been delivered.

Of course the carrying out of the recommendations for the production and delivery of more sanitary milk entails additional expense at the farm and the city depot. But the receipt of a single additional cent for a quart of milk would justify many improvements by the producer and the seller. A single case of sickness or a funeral resulting from contaminated milk would cost far more than the slight additional price of better milk for a long period.

Under these circumstances there should be no question about demanding that milk should be produced under conditions that would entitle it to be entered under Class 1 (certified milk) or Class 2 (inspected milk) as prescribed by the Washington Milk Conference; or, in case it does not conform to the requirements for these classes, that it should be efficiently pasteurized (Class 3). This classification, prepared by Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, and approved by the Washington Milk Conference, is more fully described in Circular 114 of the Bureau of Animal Industry already referred to. It is a classification that will give us, not bad, indifferent and good milk, but good, better and best milk. To produce milk under any of these classes rigid inspection is required.

The prices that must be charged for the first class make it almost impossible for the man of moderate means to avail himself of such milk. Class 2 can be produced at a lower price, but would still cost more than ordinary milk. Hence the masses must resort to the milk of Class 3. With the precautions suggested, they would reasonably be assured in the use of this milk of a safe and wholesome supply at but a trifling advance in the price.

Those who are interested in the improvement of the milk supply and who wish to obtain a comprehensive summary of facts bearing thereon, are advised to write to the Secretary of Agriculture at Washington, D. C., for a copy of Circular 153 Bureau of Animal Industry, issued April 28, 1910. The title of the circular is "The Dissemination of Disease by Dairy Products and Method of Prevention."

Stoneleigh Court.

11 Circ. 152, Bureau Animal Industry, Dept. of Agric.

ABSTRACT OF DISCUSSION

DR. WILLIAM C. WOODWARD, Washington, D. C.: After searching for a proper basis on which to determine whether or not we have achieved any substantial results through our milk inspection service, I selected deaths from diarrheal diseases only, among children under 2 years of age, and it is to those alone that the chart exhibited by Dr. Magruder relates. It is true, as Dr. Magruder says, that the method of milk inspection in use in the District of Columbia was original with a committee of the medical society of the district, on which committee I had the honor to serve. Working quite independently of anything that had been done previously, so far as we then knew, we devised it. Later, however, it came to my attention that as far back as 1873, the three food inspectors who were then doing duty in the District of Columbia had united in a formal report to the then board of health recommending this very method of inspection. This proposed method included not merely the inspection of the farms by the inspectors in the service of the then existing board of health, but included also the permit system, whereby one city or one state can control the situation outside of its territorial jurisdiction. Later, about 1884, one of my predecessors actually inspected some of the dairy farms supplying milk to the district. I mention these things so that honor may go where honor is due. Had these early workers had back of them such public sentiment as was created by the publication of the admirable report of

Dr. Magruder's committee, that first pointed out the probable sources of typhoid fever in the District of Columbia, their work would doubtless have continued. As it was it died utterly, even its memory having passed from the public mind.

DR. WILLIAM H. WELCH, Baltimore: I think that a model demonstration exhibited in the national capital is significant and impressive, and likely to be productive of results to the rest of the country. Of course, we all realize, I think, that sanitary problems connected with milk are about the most urgent and perplexing, in many ways, of solution, of any. Some years ago in Baltimore we had made an endeavor, at least, to start the same sort of a campaign of education of the public regarding milk that we had attempted in regard to tuberculosis. It may not be known to all that the first tuberculosis exhibit was that arranged by Dr. Fulton in Baltimore. It was a great success there, far beyond any thing we dreamed of; and since then it was adopted elsewhere; but give him credit for that. We have attempted to do the same thing for milk, but it has not had the same response; but I think it is a good idea, and that possibly the time is now more suitable.

It may be that the large mortality in the hospitals is due to the poor quality of the milk used there; but there is a question whether the high mortality of those particular hospitals is due to the milk.

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: Members of this Section might be interested in the educational campaign undertaken by the Department of Health in Pennsylvania. Three years ago our health officers, the men who institute quarantine for us, placard and disinfect premises, etc., were trained for dairy inspection by placing suitable literature in their hands and by having them further instructed by the county medical inspector under whom they work.

At the present time all dairy farms in the commonwealth are inspected twice each year. In our winter inspection completed some time in March we reached a total of 55,000 farms and stables producing milk for sale to creameries, condenseries, cheese factories, wholesalers, retailers and for sale from individual dairies. The inspection up to the present time has not, of course, been done with the great detail practiced at Washington, and it in no way interferes with towns and cities that have already some system of inspection of their own. In fact, it is a campaign intended to reach the men who are handling the cows and stables and caring for the milk in the country. After the inspection is made circulars are handed these men describing conditions that should exist, emphasizing particularly the need for cleanliness of cows' flanks and udders, the need for excluding all forms of dirt from the milk and the importance of cooling it at once.

We are now sending letters to each producer calling attention to the insanitary conditions found. This work reaches far back into the country district where the initial infection of milk commonly begins.

We have a statute which makes communicable diseases reportable, typhoid included. On receipt of such report telling us of the existence of typhoid, diphtheria or scarlet fever on a premises from which milk is sold, our county medical inspector at once visits the premises and establishes the department's regulations for the control of the milk-supply. If such regulations cannot be established, the sale of milk is stopped or the stock is transferred to a neighboring farm.

DR. WILLIAM EDWARD GRANT, Louisville, Ky.: As has been suggested, we look up to Washington; what governmental authorities order and advise has great influence throughout the entire country. I am acting as health officer for my city, and we are much interested in what Washington tells us. Through such influence, in part, we have been able to get every cow that produces milk for the city I live in tuberculin-tested. We had a hard fight to accomplish this and it took six to eight months of very earnest and constant endeavor. The health officers of the state first issued an order that no milk should be sold in our state that did not come from tuberculin-tested cows; and then the city health officer wrote a letter to each dairyman who sold milk in Louisville, telling him that after a certain date no milk would be permitted to be sold in our city that did not come from a tuberculin-tested cow.

At the same time an order was given that no new cows should be brought into the herd, unless they were tuberculin-tested, and that the dairymen should clean up their dairies and disinfect them according to methods suggested by the government at Washington. In that way we have improved the milk-supply wonderfully in our city; and have also interested our dairymen in keeping it improved. The education to them has been of great value. The fact is, I believe, the dairymen usually are glad to improve bad conditions, if we tell them how. They didn't know how; and they welcomed somebody who would come and say "This is wrong; and this is the way to correct it." Now we have dairy inspectors go to these dairies and see that the cows are properly curried, and the udders properly washed before they are milked, and the milk taken to a separate place and cooled; and we try to persuade our dairymen to bottle it at once and bring it to market in that way.

I think that bovine tuberculosis is very dangerous to children, but not dangerous to adults. The children in the hot weather are a good deal run down, no doubt, by the heat; and the germicidal power of the blood being lower, the germs find easy access and a location in the alimentary canal of infants, and in that way they become diseased. That is avoided in part by having none but pure milk distributed. "The Babies' Pure Milk Fund" is doing a good work with us, and we have also pasteurized and certified milk, and in this way see that the babies get only the best.

DR. SENECA EGBERT, Philadelphia: A few years ago, when the newspapers of New York were advocates almost universally of pasteurization of the milk, if I remember rightly, Dr. Darlington, of the board of health, opposed pasteurization at the dairy, the objection being that it gave the consumers a false sense of security, since a considerable period elapsed from the time the milk left the dairy until it reached the consumer, and there was the possibility that in the time of transit the milk might be contaminated, especially if carelessly handled. It does seem to me that that objection can be made a very strong one—that the milk can be pasteurized, and yet, if the way be left open for careless handling on the part of the train men or the dairy dealers in the cities, that there is chance for danger there.

Another thing that I am glad Dr. Magruder mentioned was the fairness of giving the dairymen and milkmen—the producers—a higher price for the milk. It is unfair, it seems to me, for us to advocate this better milk, unless we are willing to pay for it. Any man who knows anything about farming, knows that it is a pretty hard thing to provide the things demanded—sanitary barns, good stock and all that—and then to get no more than 3 cents or thereabouts for the milk. We must educate the public to allow a higher price for the milk—see that they understand that that don't come into the category of things to be cheapened in the attempt to reduce the high cost of living. The question of inspection is the big question and I believe that we have yet to appreciate that in most of our large cities the cost of inspection is apparently prohibitive. It ought not to be, but we are not getting—at least, as far as the municipalities are concerned—as much inspecting nor as many efficient inspectors as we should have.

DR. G. LLOYD MAGRUDER, Washington, D. C.: First in regard to Dr. Woodward's observation, I do not claim paternity of the idea of the inspection and permit system. I did claim and do claim that the report of the committee of 1894, embracing recommendation 9, quoted by me, directly caused the passage by Congress of the law giving this authority to Washington. Hence I think it is justifiable to claim the honor of being instrumental in the initiation of inspection.

As to Dr. Welch's observation, I said bad milk was *probably* the cause of the high death rate in hospitals. The lowest rate occurred where little milk was used. It is a great satisfaction that Dr. Welch has corroborated the statement that bovine tuberculosis causes from fifteen to twenty-five per cent. of certain cases of tuberculosis in children under five years of age.

In answer to Dr. Egbert's question, pasteurization should take place in the city under official supervision. I spoke of 50° F. as the danger line because of the rapid growth of bacteria in milk above this temperature. This prompts me to

mention the desirability of investigating the effects of freezing milk. I shall promptly take up this question with the Secretary of Agriculture. Three years ago the United States Consul at Chemnitz reported to the State Department that a German physician had recommended the transportation of milk in frozen blocks, since no deleterious influence was exerted by freezing. American officials caution against allowing milk to freeze. These divergent views interested me at that time. I sought without success to have them investigated at the Hygienic Laboratory. General Sternberg, chairman of one of the committees at the Yorktown Exposition, awarded first premium for milk to the Virginia Polytechnic School at Blacksburg. This milk was delivered partially frozen, after transportation 400 miles in jacketed cans.

The influence of this Section since 1907 on the milk problem has been so great that I thought it desirable to report what has been done in Washington. The symposium at Atlantic City in 1907 on the milk supplies of several cities received marked attention. The paper which I read at the symposium contained observations made by officials of the Bureau of Public Health and Marine-Hospital Service, of the Department of Agriculture, of the Health Officer of Washington, and of citizens in private life. Much enthusiasm was manifested at the information, which showed that the government authorities were so interested in milk and water supplies.

I had seen Mr. Loeb, Secretary to President Roosevelt, before I left Washington. Mr. Loeb stated that the President was opposed to a department of public health, but was heartily in favor of a bureau. On my return to Washington I saw President Roosevelt and reported the proceedings of the Association on public health matters. He showed marked interest. He directed the investigation of the milk supply as requested in the letter introduced in my paper. Many other valuable investigations along this line have been conducted since then by the government. Much of this interest is directly due to the impetus given to the movement in this section in 1907.

SCAB FORMATION IN THE NOSE

ITS ETIOLOGY AND PREVENTION *

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CHARLESTON, S. C.

"When all is said and done the local therapeutics [of atrophic rhinitis] seems to reduce itself to a thorough cleansing of the nasal mucous membrane, and the use of any simple application is as effective as anything. The severer remedies do not seem to have any material advantages over the milder ones. I am afraid that we have no specific, but I hope that one may be found and that the future will not, as in the past, show more failures than success."

These words form the closing lines of an article by Dr. George L. Richards, and about express the prevailing opinion held by rhinologists in regard to the treatment and cure of atrophic rhinitis, or true catarrh; that is, the formation of large collections of hardened mucus in the nose. The atrophic process in my opinion may be more truly regarded as a result rather than a cause of the scab formation. Be this as it may, whether *post hoc* or *propter hoc,* we are sure, at least, that we have as a result large roomy nostrils, filled with gummy collections of mucus of a desiccating character and a nauseating odor. In the early stages of the disease the nostrils are not so roomy, nor do the scabs become so dry and hard; but they rapidly cover the turbinates and fill up the vacant spaces, apparently in successive layers, until the nose is more or less completely occluded. Such is the picture which is presented to us in a case of true catarrh in the earlier stages, that is, before the nose has become hollowed out, as it were, from the accumulated scab formation and the atrophic or drying-up process which take places beneath them has gone so far as to leave the whole interior of the nose almost functionless, as far as normal secretion, the purifying and moistening of the air, the function of olfaction, etc., go.

Confronted with a case like this we are at once inclined to look to the hidden recesses of the adjoining sinuses as the "fons et origo mali." We do this because there must be a cause for the gummy change which takes place in the secretions. This problem has puzzled the scientific world up to the present time.

ETIOLOGY AND TREATMENT

The etiology of atrophic rhinitis is wrapped up in such an interminable maze of theory and conjecture that to give even a brief outline of it would amount almost to a historical investigation. Among the most prominent of the etiologic factors to which it has been attributed may be mentioned syphilis, inhalation of dust, tuberculosis, anemia and chlorosis, tobacco and alcohol, hypertrophic catarrh, effects of a previous purulent rhinitis and suppuration of the accessory sinuses of the nose, fatty degeneration of the infiltrated cells, the trophoneurotic theories, and finally, penetration of micro-organisms, Lowenberg's ozenacoccus, etc.

To trace in detail the origin of these theories would only be a needless tax on you. I will therefore state briefly that in 1896 in a paper on "The Treatment of Atrophic Rhinitis" which I read before the American Laryngological Association I reported a case which had been successfully treated with local applications of Lugol's solution in the nose together with large doses of the iodid of potassium and such operative measures as would open the accessory sinuses and give free outlet to all inflammatory exudates, pus collections, etc. An exhaustive discussion followed this paper and almost all the different methods of treatment since then have been based on that discussion. On account of the fact being noted that whenever inflammatory secretions from any portion of the lower respiratory tract came in contact with the external air, they became coagulated or gummy and finally hardened, generally with a more or less fetid odor. It seemed evident that practically the same process occurred with scab formation in the nose.

It was necessary therefore to select some drug which would maintain the fluidity of these secretions and thereby enable the patient to expel the accumulations and prevent the noisome odor. The well-known influence of potassium iodid in producing lacrimation and increasing the nasal secretion naturally suggested that drug as the most efficient for this purpose. It was found necessary, however, to give it in increasing doses until a very large amount was ingested daily before his desirable result was accomplished. Of course this amount varied greatly in different individuals. Many patients were found who would absorb from 600 to 900 grains a day before the nasal secretions would remain fluid and this without any noticeable ill effects whatever; in fact, on the contrary, the gain in flesh would be rapid and the improvement in the general health would be very marked. I desire to emphasize this fact and to state that in every case in which I have used these large doses, together with the operative treatment, the scabs have ceased to form.

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* Read before the South Carolina Medical Association, April 19, 1910

RESULTS

The importance of the discovery of any method by which the formation of these scabs may be stopped by the therapeutic effect of any drug through the blood, together with such surgical measures as will assist in eliminating the morbific processes, will be recognized when I state that I know of no other process in the literature of the subject which has been credited with like results. In the gradually increasing doses up to the large amounts herein advised, there were but few of the well-known constitutional effects of the drug exhibited: no salivation, but little lacrimation, no apparent ill effects on the kidneys, and few or no symptoms of iodism on the skin. In the cases which I have reported there was no history or symptoms of syphilis. The only case in which there has been any return of the scab formation was that of a boy aged about fifteen, who had marked cardiac insufficiency. After a violent case of epistaxis with severe reactionary fever he was removed by his parents and further treatment refused. The drug was always administered with six or eight ounces of water taken after meals. In these extremely large doses it appeared to liquefy the blood and doubtless the same action took place on the coagula in the nose. Hare gives the maximum dose of potassium iodid as from 100 to 200 grains, but I have been informed of cases in which as much as 1,500 grains have been ingested daily without apparent ill effect. My custom has been to begin with 20 drops of a saturated solution and run the dose up rapidly until the secretions in the nose become so fluid that the scabs are easily expelled. During this time, however, I make every effort to open the sinuses as freely as possible so as to give free outlet to all inflammatory secretions.

We are all familiar, of course, with patients with constitutional syphilis who will not tolerate potassium iodid in any quantity. Hence the presence or non-presence of syphilis does not appear to influence the toleration for the drug in any way, and hence also the extreme toleration for it in the large doses above mentioned did not lead me to assign syphilis as the underlying cause. It has been a noticeable fact, however, that those who have the scabs in the nose are almost universally extremely tolerant of the drug. I am not prepared to say just what the underlying condition or diathesis in the blood is. It seems to be recognized by a great many authorities to be syphilitic in many instances, but it is certainly not so in a great number of cases, as mercury seems to have no influence on them whatever, even when pushed to the verge of salivation.

The following illustrative case of a patient recently under treatment I will report because of the gratifying result obtained, and also for its instructive value.

The patient was a young woman, aged 18, of Irish descent, with every appearance of the most robust physical health. Her complexion was of the peach-blossom variety and was without a blotch. Her family were all healthy people and had never shown any signs of the disease. Her father died of tuberculosis, but she herself weighed 150 pounds and showed not the least tendency towards that disease. She had had the scabs in her nose for about one year, and was not aware of any special cause which produced them, except diphtheria, which she had in infancy. I found on examination that both nostrils would become impacted with scabs daily, and that it was only with great difficulty that she managed to extract them. She was put at once on potassium iodid and ordered to increase the dose as rapidly as possible. The anterior ends of both middle turbinates were removed successively so as to give free outlet to all inflammatory secretions, and the ethmoid sinuses were carefully curetted. The nostrils were also thoroughly cleansed twice or three times a week with a solution of mercury bichlorid and sodium bicarbonate. It is very gratifying to report that after each operation, and as the patient became more under the influence of the iodid, the scabs rapidly lessened until she had scarcely any at all and would go for days without the use of the douche. Subsequently the scabs have entirely disappeared. The largest amount of the iodid taken was only 180 grains daily.

85 Broad Street.

REPORT OF A CASE OF ANEURISM OF CORONARY ARTERY *

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ST. LOUIS

This case is interesting, first because of its rarity. (On examination of the literature to date, I was able to find only three reported cases, this one making the fourth and being the only case that showed involvement of the right coronary artery); and secondly, because diagnosis has never been made ante-mortem.

Patient.—C. R., permit No. 6622, a negro man, aged 27, single, laborer, entered the St. Louis City Hospital Nov. 8, 1909. Dyspnea had extended over a period of four weeks, and there was slight edema of both ankles. Examination of the cardiac area revealed a systolic and a diastolic murmur at the base, a systolic and presystolic murmur at the apex and also a loud, rubbing sound over the entire cardiac area. There was no marked distress at this time. The patient's mother died of dropsy; otherwise family history was negative. He had rheumatism in the right shoulder several years previously. The patient smoked and chewed tobacco in moderation, consumed large quantities of beer and whiskey. He denied emphatically of having had syphilis, although he had gonorrhea several times. The present illness had begun three months previously with vague pains in the abdomen and left chest. The patient stated that he had felt ill ever since. During the last week or ten days his stomach began to swell, as he terms it, and two days previous to his entrance into the hospital he noticed that his legs were swollen and about this time he also had a cough.

Physical Examination.—Patient was of fair development and nutrition. Epitrochlear and posteervical glands were distinctly palpable.

Respiratory Apparatus: Respiratory sounds were loud and jerky in character. Vocal resonance was exaggerated over the entire chest.

Circulatory Apparatus: The area of cardiac dulness was greatly increased superiorly and to the right of the sternum and extended well beyond the left mammillary line. The apex-beat was displaced one inch to the left of the left mammillary line and was in the fifth interspace. At the base of the heart could be heard a seesaw murmur, which was conducted into the left axilla. At one time, a presystolic murmur was heard, but this murmur was not present at this examination. The radial pulses were regular and equal, but the volume was not very good. Edema of the legs had disappeared at this time, two days after admission to the hospital.

Digestive Apparatus: The abdomen was smooth and slightly distended. The liver dulness extended 1½ inches below the costal margin in the right mammillary line. The left lobe was markedly enlarged. There was no pulsation anywhere about the liver. There was some dulness over the flanks, probably due to ascites.

Genito-Urinary Apparatus: The urine was amber, acid and clear; specific gravity 1015; it contained few epithelial cells and leukocytes.

Nervous system was negative.

Clinical Diagnosis.—Adhesive pericarditis, cor bovinum, endocarditis and multiple valvular lesions.

* Read before the St. Louis City Hospital Alumnæ Society, May 5, 1910.

Course of Disease.—Treatment consisted of elimination, cardiac stimulation and morphin. On November 28, twenty days after admission, the patient had a leukocyte count of 15,500. Repeated examinations of the sputum and physical findings had excluded tuberculosis. The patient at this time became very restless and complained of colicky pains in the stomach, especially well marked in the epigastric region. He assumed the knee-chest posture, as it seemed to relieve his pains somewhat.

On November 29 the patient complained bitterly of pain in the epigastric region in the median line. This pain had grown progressively worse during the past twenty-four hours. Palpation revealed a pulsating liver reaching down to the umbilicus. The pulsation was marked just below the ensiform cartilage. The patient assumed the knee-chest posture by preference. When seen on the morning of November 29, the patient was in great distress, the heart sounds being somewhat incoordinated. He soon became unconscious, with imperceptible pulse. He died quietly after vigorous stimulation had failed.

Autopsy.—This was held six hours after death. Rigor mortis was complete; body heat absent. There was slight distention of the abdomen, but no edema of the extremities. On making a longitudinal incision, there was a subcutaneous edema over the thorax and abdomen. About a liter of straw-colored, clear fluid was found in the abdominal cavity, but there was no peritonitis.

On lifting the sternum, it was found that the heart extended on the right side about 5 cm. beyond the middle line and reached the level of the second interspace. The apex was about two fingerbreadths to the left of the nipple line. The ascending arch of the aorta was dilated just above the aortic valves to the size of a goose-egg. Both auricles and ventricles were widely distended with blood. There were only 3 or 4 c.c. of pericardial fluid. Over the anterior surface of the right ventricle, there was a moderately fresh epicardial opacity, 3 cm. long by 3 cm. broad.

The left pleural cavity contained about 200 c.c. of blood-stained fluid, while the right pleural cavity contained about a liter of the same fluid. There were moderately firm pleuritic adhesions over both bases and the posterior surface of both lungs. The heart before being opened weighed 900 gm. After the expulsion of blood and clots, it weighed 600 gm. Both auricles and ventricles were filled with red blood and clots.

In the right interventricular wall there were two fluctuating dome-shaped tumors; one, arising just below the level of the pulmonary orifice, had a base 2.5 cm. and rose 1 cm. above the surrounding structures; the other mass was located a little below the tricuspid valve, about 3 cm. at the base, and was not so sharply elevated.

The overlying myocardium was grayish-yellow, with hemorrhagic spots scattered about the periphery. The pulmonary valve was free and translucent. The orifice measured 7 cm.

The left heart was dilated. The ventricular wall measured 6 cm. The mitral valve measured 11 cm. On opening the aortic ring, the knife passed through and opened a mass of old, brownish-yellow, friable thrombus at the site of the auriculoventricular margin. This thrombus was about 4 cm. in diameter and communicated directly with the right coronary artery, the opening to which easily admitted the index finger. The center of this thrombus was filled with fresh, currant-jelly-like blood-clot. The left coronary artery presented no anomaly.

The interventricular wall presented a slight bulging over an area that corresponded with the swelling noted in the right ventricle. The myocardium in this area was yellow and opaque. A few overlying vessels in the neighborhood were markedly congested. There was a marked yellow striation of the myocardium in the right ventricle, especially in the chordæ tendineæ, which microscopically showed fatty degeneration.

Above the aortic ring the aorta had a saccular dilatation 6 cm. in diameter with a depth of 3 to 4 cm. The wall of this aneurism contained secondary pockets, which varied from 1 or 2 mm. to 1 cm. in diameter. There was a marked thickening of the intima throughout the rest of the aorta, the surface being covered with rugæ throughout the entire length of the aorta. The aortic ring measured 8 cm.

The abdominal aorta showed a regularly folded and thickened intima.

The left lung weighed 250 gm., the right 275 gm. Both were air-containing throughout and presented no areas of consolidation, although there was moderate dependent congestion.

Each kidney weighed 180 gm., was unusually firm, and of a dark wine-red color. The capsule separated easily. The cut surface showed a uniformly dark-colored cortex with distinct markings. The cortex was about 6 mm. in thickness.

The spleen was firm; its surface was smooth and dark slate-gray. The surface was firm and pulpy, was free, and the markings were distinct. It weighed 100 gm.

The liver was greatly congested and weighed 2100 gm. The cut surface showed a marked contrast between the fatty liver lobules and congested central vein.

The pancreas and adrenals were negative.

Anatomic Diagnosis.—Aneurism of the right coronary artery, thrombus of the coronary artery, acute necrosis of the myocardium, saccular aneurism of the aorta, fibrous pleuritis, pleuritic effusion, chronic passive congestion of liver, lungs, and spleen, and fatty degeneration of the heart.

THE STRAUSS REACTION FOR THE DIAGNOSIS OF GLANDERS*

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BOSTON

Since Strauss[1] in 1886 discovered the fact that when material containing virulent *B. mallei* was inoculated into the peritoneal cavity of male guinea pigs scrotal lesions developed, the method which bears his name has been very generally used.

A positive reaction followed by typical organisms and a typical culture is unfailing evidence of the presence of *B. mallei* in the material inoculated, while the failure to obtain the reaction is not proof that the horse from which the specimen was taken has not glanders. Hill and Burr,[2] and also Frothingham,[3] in 1901 called attention to the fact that frequently material from a horse which had glanders, as proved by autopsy, failed to give the reaction.

The bacteriologic laboratory of the Boston Board of Health makes free examination for any disease of a bacterial nature which is dangerous to public health. Our tests for glanders during the past four years have been respectively, 159, 208, 265 and 232, and of this number 301 or 34.4 per cent. were positive. The technic of examination is given in full that each step may be followed:

TECHNIC

Outfits consisting of a box containing two sterile swabs in a tube, together with a card with blanks to be filled out by the veterinarian, may be found at any of the culture stations of which there are about fifty scattered over the city. After use, the outfits can be left at the culture station to be sent in by the regular station delivery, or, as is more frequently done, may be sent at once to the laboratory.

On receipt, about 3 to 5 c.c. of sterile water is added and the swabs are thoroughly soaked, then by rotation, together with pressure, against the side of the tube, most of the material is left in suspension: the swabs are now used to inoculate a potato, after which a smear is made to show the kind and number of organisms present. They are then put in a pail containing 5 per cent. phenol.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Strauss: Compt. rend. Acad. d. sc., 1889, 108, p. 530.
2. Hill and Burr: Am. Pub. Health. Assn. Report, 1901, p. 439.
3. Frothingham: Jour. Med. Research, 1901, No. 2, vi, 331.

With the suspension, two male guinea-pigs (those weighing at least 500 gm. being preferable) are inoculated intraperitoneally; one with 1 c.c. and the other with 0.5 c.c., unless there are myriads of organisms, or if streptococci are present, when half as much is used.

The reason for using two pigs is twofold, for frequently, as will be shown later, one pig will be positive and the other negative; and on the other hand, one pig may die of peritonitis, while the other will live and give the reaction.

All pigs under test for glanders are kept for a month, if negative, before a final report is made to that effect, although a tentative report is made at the end of a week.

All pigs under observation are examined at least twice daily for the first week, and when any change is seen the fact is noted on the card.

As soon as possible after the pigs show the Strauss reaction, autopsy is made, and all notes entered on the animal cards, which are then filed away with the original one filled out by the veterinarian. At autopsy, a culture is made from each testicle which shows a lesion, and when but one shows the reaction, two are made from that one, and smears are also made for microscopic examination.

SUMMARY

In summing up the work on glanders, I have first taken all the positives for the past four years, ending January 31, 1910, and second, all cases during the past year.

A summary of the 301 positive cases shows the following dosage:

Cases showing organisms and receiving 1. and 0.5 c.c.	258
Cases showing no organisms and receiving 1. and 0.5 c.c.	18
Cases showing myriads of organisms or streptococci, receiving 0.5 and 0.25 c.c.	25
	301

The result of the cultures made directly from the swabs, on receipt of the specimen, follows:

Culture negative in	132 cases
Culture positive in	32 cases
No notation on card	8 cases
No growth	3 cases
A mould present in	126 cases
Total	301 cases

It is noticeable that swab cultures from nasal cases are very apt to be overgrown by a mould.

The value of the swab culture is apparent from the fact that of the 32 cases in which the swabs gave a positive culture, 11 showed no lesion in the pigs by the third or fourth day, so were inoculated with a suspension from the surface of the potato, and in each instance there was a marked Strauss reaction on the second day following, and autopsy showed the characteristic lesions with typcial organisms microscopically, and typical cultures were obtained from the lesions.

The location of the lesions in the 301 horses from which the specimens were taken is here shown:

Nasal	133 cases
Other than nasal	155 cases
Both nasal and lesion elsewhere	2 cases
Location of lesion not given	11 cases
Total	301 cases

Table showing cases, dosage and result of swab cultures by years:

	1906.	1907.	1908.	1909.	Total.
Cases positive	51	75	93	82	301
Receiving 1 and 0.5 c.c.	51	73	88	71	283
0.5 and 0.25 c.c.	0	2	5	11	18
Streptococci present	2	1	7	10	20
Swabs positive, pigs positive	2	3	11	5	21
Swabs positive, pigs negative	0	2	3	6	11
Suspicious bacilli present in examination of smears	10	17	32	18	77
Followed by positive culture	1	2	3	2	8
Followed by negative culture	3	10	12	7	32
Overgrown by mould	5	5	17	9	36
Showing no growth	1	0	0	0	1
Swab cultures negative	21	37	38	36	132
Swab cultures positive	2	5	14	11	32
Mould	20	30	41	35	126
No growth	3	0	0	0	3
No notation on card	5	3	0	0	8

During the year ending January 31, 1910, 232 specimens were examined for glanders. Of this number, in 193 instances the inoculation consisted of 1 c.c. and 0.5 c.c., while in the remaining 39 but half as much was used.

The life of the individual pigs together with dosage is rather interesting. In the 193 cases in which the pigs received 1 c.c. and 0.5 c.c.:

Both lived in	141 instances
The 1 c.c. pig died in	14 instances
The 0.5 c.c. pig died in	8 instances
Both died in	30 instances

In the remaining 39 cases, the inoculation was 0.5 and 0.25 c.c., and of these,

Both pigs lived in	15 instances
0.5 c.c. pig died in	8 instances
0.25 c.c. pig died in	4 instances
Both died in	12 instances

From the above will be seen the value of inoculating more than one pig, as in a total of 232 cases, there were 34 instances in which one pig died while the other lived. This is even more striking when we come to consider the individual pigs among the positive cases, as in only 33 instances did both pigs give a positive reaction.

For convenience I call the pig getting the larger amount the 1 c.c. pig, and the other the 0.5 c.c., even in the cases where they received 0.5 and 0.25 c.c.

Both pigs positive in	33 instances
1 c.c. pig positive, 0.5 c.c. pig negative in	20 instances
1 c.c. pig positive, 0.5 c.c. pig dead in	7 instances
1 c.c. pig negative, 0.5 c.c. pig positive in	8 instances
1 c.c. pig dead, 0.5 c.c. pig positive in	6 instances
Swab positive, pigs negative in	6 instances
Only one pig used in	2 instances

From this it appears that had the 1 c.c. pig only been used, but 62 positives would have been obtained, an error of 24 per cent., while had the 0.5 c.c. pig alone been depended on, there would have resulted but 49 positives with an error of 40 per cent.

Had a swab not been made, 6 cases would have been missed, an error of 7.5 per cent.

While the final positive result would undoubtedly have been obtained by submitting other specimens, it will be readily seen that this would have only been accomplished after a delay which in many instances might have exposed a number of horses to infection. In any large series of tests for glanders, lesions other than the typical Strauss reaction will occur, and a number of these were spoken of in a paper by the author[4] before the American Public Health Association in Winnipeg in 1908, and a number have since occurred.

The period from inoculation to development of lesions varies considerably. Thus, of the 1 c.c. pigs:

6 showed well developed lesions on 2nd day
23 showed well developed lesions on 3rd day
13 showed well developed lesions on 4th day
3 showed well developed lesions on 5th day

Three on the 6th, two on the 7th; one on each of the following: 8th, 10th, 17th, 22nd, 28th, 31st, 34th, and two on the 25th.

Of the 0.5 c.c. pigs:

6 showed lesions on 2nd day
11 showed lesions on 3rd day
11 showed lesions on 4th day
10 showed lesions on 5th day
1 showed lesions on 6th day
3 showed lesions on 7th day
2 showed lesions on 8th day

One each on the 9th, 18th, 23rd and 25th days, respectively.

Of the delayed cases, i.e., over 7 days, but two had a typical Strauss reaction, and in but two other cases was

4. Arms: Am. Jour. Pub. Hyg., August, 1909, xix, 570.

there any testicular involvement, and in each of these one testicle was converted into an abscess, there being but a thin wall, the interior being creamy pus, and *B. mallei* being recovered in pure culture.

There was a tumor at the inoculation site in 6 cases; twice an inguinal gland was involved; once a tumor was found in the omentum and once in the mesentery. In these freak cases none is considered positive without a culture and animal test with a typical Strauss reaction.

Three things are required for the diagnosis of glanders: typical Strauss reaction, typical organisms from the lesion, and typical cultures.

While there is a marked variation in the *B. mallei* on artificial media, the organisms direct from the lesions are characteristic, taking the stain (Loeffler's M:B) irregularly.

CONCLUSIONS

1. In the diagnosis of glanders by the Strauss method it is better to use more than one guinea-pig.
2. Before inoculating it is well to make a microscopic examination as a guide to dosage.
3. A culture from the swab often aids in the early diagnosis.
4. Pigs should be kept under observation for a month, and if a lesion of any kind is present, autopsy should be performed and cultures made.

30 Huntington Avenue.

A NOTE ON THE TREATMENT OF PERNICIOUS ANEMIA

ALFRED C. CROFTAN, M.D.
CHICAGO

UNDERLYING FACTS AND PRINCIPLES

Disturbances of the gastric function, varying from mild degrees of dyspepsia to complete achylia gastrica, almost invariably precede pernicious anemia and accompany it throughout. Whether the anemia (remaining undiscovered) is primary, the dyspepsia secondary, or *vice versa,* it is generally difficult to decide, and I am strongly inclined to the belief from a study of many case reports and from personal observations that gastro-intestinal disorders in the overwhelming majority of the cases usher in the disease. One could consequently imagine such cases of pernicious anemia to be the result either of chronic undernutrition or of a gastro-intestinal self-intoxication resulting from perverted digestive secretion, or both.

The fact that not every case of chronic undernutrition or of autointoxication develops into pernicious anemia calls for the inclusion of some specific factor or factors of hitherto unknown character, possibly of varying origin, of which the bothriocephalus toxemia, for instance, would be a prototype. Even without postulating the cooperation of any specific toxemia it is well to remember that any chronic malnutrition invariably produces secondary anemia; and I believe that any so-called secondary, or simple, anemia can ultimately develop into a so-called primary, or pernicious, anemia, in so far as any profound and persistent change in the quantitative composition of the blood can merge into a qualitative change in the blood composition, whenever, namely, the processes of regeneration become exhausted and degeneration from overtaxation sets in. Here a varying individual factor must be included, that is not a biologic constant and that is incalculable.

Since I have been paying attention to the gastric function in every case of profound anemia presenting the morphological characteristics of the pernicious type, I have observed either complete achylia gastrica or exceedingly low degrees of hypochlorhydria or complete achlorhydria. Several of the cases referred or seen in consultation were originally, in fact, interpreted as carcinoma of the stomach, owing to the lack of gastric acid, the dyspeptic disturbances and the profound anemia.

Here then is a definite point of attack in the treatment of this disease, viz., the restoration of nutritive equilibrium by artificial means, and, by implication, the prevention, so far as that is possible, of abnormal or excessive intestinal decomposition. The following method, after trials in various directions and the employment of different dietetic schemes, has proved itself to be most efficacious, leading, as will presently be shown, to a symptomatic (?) cure within a very short time in the three cases in which it has so far been consistently tried. When I record that all the other patients with pernicious anemia who have come under my observation in the last five years, who were not treated in this way, are dead or not at all improved, the justification of this preliminary note will be recognized.

INTERPRETATION OF RESULTS

In interpreting therapeutic results in any case of pernicious anemia the greatest conservatism should be observed in two directions; namely, first, one should be altogether sure that one is dealing with a true pernicious anemia and not with a severe degree of simple anemia; second, one should be quite certain that any apparent improvement is not merely one of the spontaneous remissions that occur in so characteristic a manner in this disease, and quite independently of any treatment that may have been instituted.

The blood analyses to be recorded below, indicating in particular the appearance of degenerative types of blood cells, identify the cases as pernicious anemia in the present accepted sense. That the improvement was not due merely to spontaneous remissions is manifested by the fact that an upward turn occurred almost immediately in each case, was steady and progressive until normal conditions were attained in an astonishingly short time, accompanied by a striking gain in weight. The normal weight and the improvement in the blood condition have been maintained until the present writing, all of the patients being in an excellent state of health both in regard to their subjective sensations and their working capacity, as well as in regard to their blood. The gastric achylia or hypochlorhydria remain unchanged, and it is necessary to pursue a régime continuously appropriate to this deficiency.

PLAN OF TREATMENT

The treatment consists in the incorporation of the maximal amount of proteins administered in conjunction with artificial digestants to facilitate their assimilation in the gastro-intestinal tract and their proper absorption from the bowel. The diet consists in an abundance of meat, fish, eggs, milk, buttermilk, administered by mouth in a finely divided form and fed in comparatively small quantities at frequent intervals; so that the patients instead of receiving three large meals a day receive five or six smaller feedings in the course of the twenty-four hours. The selection of the particular kind of albuminous food and its mode of preparation depend somewhat on individual peculiarities that must

be studied in each case; tastes and dislikes, cravings, idiosyncrasies. Meats are given in the form of broiled, roast and stewed preparations, never fried; or as meat juices, raw or slightly heated meat jellies, "peptones," gelatins; eggs, preferably raw or soft boiled, in large quantities each day, a dozen if possible; milk and milk preparations of all kinds *ad libitum*, raw, boiled, as cottage cheese, or in combination with eggs as eggnog, etc. The addition of a little alcohol each day to the diet has been found of value rather on account of the food value and the "sparing" properties of the latter than on account of any stomachic or generally stimulating effect. Fats are given moderately, because, when administered in combination with abundant albumens, they are apt to coat the albuminous particles in the stomach and prevent contact with the artificial digestive juices to be administered. Enough cereals, bread stuffs and vegetables, fruits, all administered in a soft and finely divided form, are allowed in addition, to make up a palatable meal.

Such an over-diet in which albuminous foods predominate is given both by mouth and by rectum; per rectum in the form of predigested clysmata, together with sodium bicarbonate, a little sodium chlorid and pancreas, with about 10 drops of laudanum (the latter to reduce expulsive peristalsis); by mouth, either in the same way (without laudanum), or, preferably by far, with very large quantities of hydrochloric acid. Here it is necessary to experiment a little. One must look on the stomach in these cases merely as a sac with no digestive function and generally with reduced propulsive powers, and one can either administer hydrochloric acid with the object of artificially creating conditions that resemble the normal gastric digestion, or can ignore the gastric digestion altogether and by administering pancreas and an alkali, so to say, transfer intestinal digestion backward into the stomach. The former plan, if it can be carried out, is by far the better, for the HCl, in addition to being a powerful digestant of albuminous pabulum, acts as a deterrent to the development of an abnormal gastro-intestinal flora. Pancreas-alkali, on the other hand, rather favors intestinal putrefaction as indicated by definite urinary and fecal phenomena. The acid plan, moreover, more closely approximates the normal. The pancreas plan permits of a more liberal feeding, especially of carbohydrates and fats, but I have found that the albumens count rather than the other food classes, so that in the particular class of cases under discussion nothing is gained by more food variety.

THE ACID PLAN

All of the patients reported below were treated on the acid plan. They were given 10 to 15 drops of strong hydrochloric acid fifteen minutes after each feeding, and again thirty minutes after each feeding. It is useless to administer the dilute acid. Much prejudice is encountered, especially on the part of the druggist who fills the prescription, to the administration of such large quantities of strong hydrochloric acid, but no harm ever accrues from its use, provided enough albuminous pabulum is given at the same time. In order to prevent mouth irritation the acid is best given in mucilage water; I have never seen any advantage from the simultaneous administration of pepsin, and consider it superfluous. Rectal clysmata of the character indicated above are given twice a day, or, if some rectal irritation results, only once a day. They are needed only in the beginning; that is, for a week or so. Occasionally a patient cannot tolerate them at all; in such a case it is best to omit them, only, however, after a persistent trial and after every attempt has been made to overcome the prejudice commonly existing against this form of feeding.

HOSPITAL METHODS

That this treatment should be begun in a hospital is self-evident. In the first place, the patients should be kept completely at rest in bed; in the second place, a trained dietitian is needed to prepare the food properly until the patient or his attendants have been taught how to prepare and administer the diet; in the third place the patient's blood condition, body weight and digestive function should be under daily control, so that the treatment may be arranged to suit individual peculiarities that may be discovered. More than a three weeks' hospital sojourn is rarely needed. Improvement rarely becomes manifest before the tenth to the fifteenth day; but from then on, in the cases observed so far, the improvement is rapid. There is often some discomfort in the beginning, and the hospital is the place to enforce persistence in a somewhat strenuous and not altogether agreeable plan, especially as all of the patients have been very irritable and cranky in the beginning and quite difficult to manage. And one of the most gratifying results observed early in the course of the treatment has been a change in their mood and spirits and disposition for the better as soon as proper nutrition was again fairly under way.

THYROID, ARSENIC

In addition to the above treatment the patients should have some thyroid extract, in doses varying from three to five grains of the extract, three times a day, by mouth or with the clysma by rectum. I am under the impression, enforced by certain special studies in this direction to be reported on in another place, that the administration of thyroid materially aids in the assimilation of proteins. In deference to a venerable plan all the patients also received in the beginning some arsenic, given in the form of sodium cacodylate dissolved in normal salt solution in the dose of one grain every day intramuscularly. Patients previously treated with arsenic alone never improved particularly, so that arsenic is considered merely an adjuvant, that certainly can do no harm and may possibly do some good along directions that we do not fully understand. Iron was not given as a drug; an overabundance of this element being incorporated in the meat juice ingested.

SYNOPSIS OF CASE REPORTS

CASE 1.—Mr. K. M. M., referred by Dr. C. H. Wallace, of St. Joseph, Mo. Age 54. History of gastro-intestinal disturbances extending over several years. Rapid loss of flesh during last year. Entered Michael Reese Hospital Nov. 2, 1908. Pale, anemic, slightly edematous skin. Slight albuminuria, a few hyaline and granular casts. Temperature on admission 99.4 F. Gastric analysis after Ewald test meal shows complete achylia gastrica without motor insufficiency. Blood Analysis: Hemoglobin 30 per cent., red b.c. 1,180,000, white b.c. 7,400. Differential Count: Neutrophiles 67½ per cent., lymphocytes 30 per cent., large mononuclears 0, eosinophiles 1 per cent., transitionals 1.5 per cent. Red Cell Morphology: Poikilocytosis, megalocytes, microcytes, megaloblasts, microblasts, a few nucleated red cells, polychromatic degenerations. Weight on admission 132½ pounds.

Treatment instituted as above. Left hospital after three weeks, Nov. 23, weighing 137½ pounds, a gain of five pounds. Albumen and casts disappeared from urine. No edema. Color, strength and spirits greatly improved. Blood Analysis: Hemoglobin 65 per cent., red blood count 2,600,000. No megaloblasts or microblasts, a few nucleated red cells; poikilocytosis

still present but less marked. Treatment continued conscientiously at home with steady improvement in general strength, and resumption of daily duties.

The following was the report of the blood examination at the expiration of 10 weeks: Hemoglobin 85 per cent., red b.c. 4,400,000, white b.c. 8,400. No abnormal red cells. No poikilocytosis. Increase in weight. Report on Feb. 9, 1910: "I am as good as ever." Weight in May, 1910, 147½ pounds.

The patient still continues the use of large doses of hydrochloric acid and is instructed to persist in its use indefinitely.

CASE 2.—Mrs. K. L. C., Kansas City, Mo. Age 49. Seen first with Dr. Golden at Mercy Hospital and referred to Michael Reese Hospital Sept. 14, 1909. History of increasing weakness, severe digestive disorders and great loss of weight within a year. Patient in a state of profound prostration and unable to be out of bed. Exceedingly pale and slightly edematous skin. Slight albuminuria without casts. Temperature on admission 100.2 F.

Gastric analysis after Ewald test meal shows complete lack of hydrochloric acid, very slight peptic power and a little blood. No motor insufficiency. Blood Analysis: Hemoglobin 30 per cent., red b.c. 1,384,000, white b.c. 6,800. Differential Count: Neutrophils 72 per cent., lymphocytes 22 per cent., large mononuclears 2 per cent., eosinophils 2 per cent., transitionals 2 per cent. Red Cell Morphology: Poikilocytosis, many megalocytes and microcytes, a few megaloblasts, polychromatic degeneration types. The weight of the patient on admission was 199 pounds.

Treatment as described above. Discharged from hospital after four weeks, weighing 133½ pounds, i. e., a gain of 14½ pounds. Albumin disappeared from the urine. Skin color florid and no edemas. Almost normal strength. Blood Examination: Hemoglobin 60 per cent., red b.c. 3,400,000. No megalocytes or megaloblasts or polychromatophilia. Slight poikilocytosis. White count 9,100, differential normal. Referred to Dr. Logan Clendening, of Kansas City, Mo. Report from the latter Oct. 26, 1909; Hemoglobin 85 per cent., red b.c. 3,500,000. On Dec. 27, 1909: Hemoglobin 100, red cells 4,400,000. No abnormal morphology. Weight on Oct. 26, 1909, 146 pounds. This weight has been maintained to date, as well as the normal blood condition.

The following report was received from the patient in May, 1910: "I feel splendid, sleep well and have a good appetite. However, I am still taking the hydrochloric acid and would like to have you tell me if I must take it during the remainder of my natural existence." This querry was answered in the affirmative.

CASE 3.—Mr. J. B., referred by Dr. I. C. Smith, of Stockton, Ill. Age 46. Entered Michael Reese Hospital Sept. 1, 1909. History of loss of strength and rapid loss of weight for the last seventeen months. Patient exceedingly weak, very pale and slightly edematous. Slight albuminuria and numerous hyaline and a few blood casts. Severe gastric distress with loss of appetite and nausea. Temperature on admission 100.4 F.

Gastric Analysis: Total acidity 9. Free hydrochloric acid absent. Slight degree of motor insufficiency. Slight peptic power. A few red blood corpuscles were found in the stomach contents.

Blood Analysis: Hemoglobin 40 per cent., red b.c. 1,800,000, white b.c. 8,200. Differential count normal. Red Cell Morphology: Severe poikilocytosis, megaloblasts, microblasts megalo- and microcytes, nucleated reds and polychromatophilia. Weight on admission 135 pounds.

Treatment as above. Discharged from hospital Oct. 2, 1909, i. e., after about four weeks, weighing 155½ pounds, a gain of 22½ pounds. Blood Analysis: Hemoglobin 75 per cent., red b.c. 2,400,000. Poikilocytosis slight and no other abnormal red cells.

Treatment continued at home with progressive gain in weight and strength and resumption of farming duties. Patient reported on May 12, 1910, weighing 157 pounds, and with an altogether normal blood picture.

100 State Street.

FILARIASIS ON THE ISLAND OF GUAM

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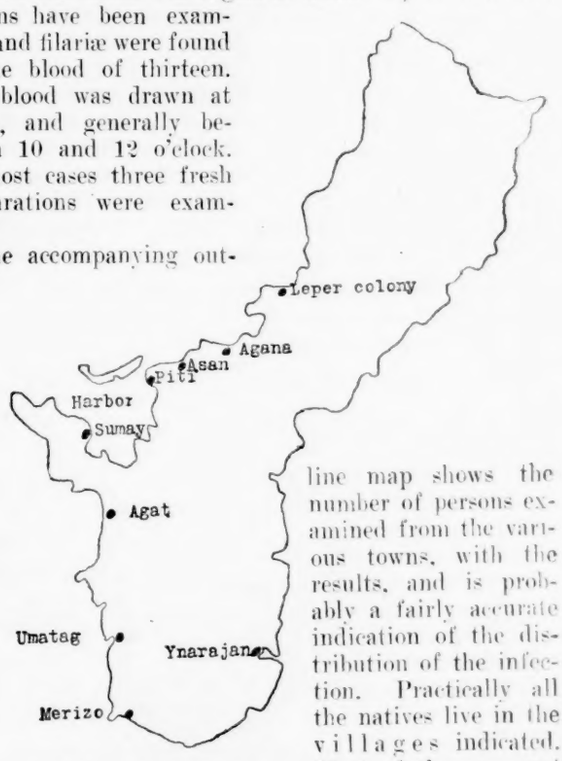
Two months ago I found filariæ in a stained smear of sedimented blood which had been drawn from one of the arm veins of a native at 10 a. m. Investigation soon showed that the filariæ were present in the skin capillaries only at night, except that occasionally one or two would be found in a specimen obtained as late as 8 a. m. and sometimes as early as 5 p. m. They were most numerous near midnight. In size, structure and movements they were like *Filaria nocturna*. Their presence in the blood drawn at 10 a. m. can be accounted for by the fact that a comparatively large quantity of blood was drawn (10 c.c) and from a large vein.

A systematic examination of natives from various parts of the island was begun at once. Up to date 244 persons have been examined and filariæ were found in the blood of thirteen. The blood was drawn at night, and generally between 10 and 12 o'clock. In most cases three fresh preparations were examined.

The accompanying outline map shows the number of persons examined from the various towns, with the results, and is probably a fairly accurate indication of the distribution of the infection. Practically all the natives live in the villages indicated. Most of them go out to their agricultural pursuits during the day, but return to the villages at night.



Map of Island of Guam

The island is 31 miles in length and has an average width of 7 miles. The population is about 12,000. Agaña has a population of 7,000; all the other places are small villages.

TABLE OF EXAMINATIONS

Name of village	No. of examinations	No. pos.	No. neg.
Leper Colony	30	0	30
Agaña	75	2	73
Asan	7	0	7
Piti	8	0	8
Sumay	15	0	15
Agat	21	0	21
Umatag	5	0	5
Merizo	6	0	6
Ynarajan	58	11	47

One of those who gave a positive test at Ynarajan is a Japanese who has been on the island for three years but lived in Agaña till one month before the examination. He came here directly from Japan and has never

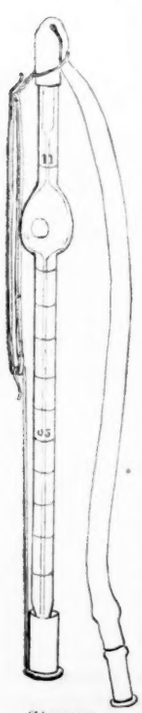
lived anywhere else. The other twelve patients are natives. The two in Agaña who gave positive tests are prisoners and are confined in the same building. One of these lived at Ynarajan before being sent to prison, three years ago. The other prisoner has been confined for two years and never lived outside of Agaña. It seems fairly certain that the first prisoner was the source of infection for the second, as the disease is apparently closely limited to the region of Ynarajan.

Filariasis has not been known to exist here. Its introduction must be fairly recent, as none of the thirteen patients as yet show any pathologic changes. How it came here is uncertain. Several months ago a diagnosis of elephantiasis was made on a Jamaica negro who lived on the island about twenty years, but this diagnosis was made from characteristic enlargement of feet and legs. Several blood examinations had been negative. This man had been confined in the leper colony for five years with the diagnosis of leprosy. The examinations from the colony were all negative, as were those from Agat. Some fifty or sixty years ago this island was frequently visited by natives from the Caroline group who had removed to Saipan. An intelligent old native priest here says that some of these visitors had great enlargement of the legs, which from his description was evidently elephantiasis. About 1870 some Carolinos (about 400) were brought here to cultivate cotton. They lived together along the beach near Agaña. The last of these were deported in 1901. No one remembers seeing any of these with any lesions which resembled elephantiasis.

TWO AIDS IN MAKING BLOOD COUNTS

STERLING BUNNELL, M.D.
SAN FRANCISCO

1. The practitioner is sometimes in need of an immediate white count when at the bedside and far from a microscope. Here is a quick, satisfactory and easy method by which it can be done in the patient's room and the result will be the same as if the counting were done through a regular microscope.



Stopper for blood pipette.

Procedure.—Draw the blood into a pipette, dilute with acetic acid and place a drop in the Zeiss counting chamber in the usual way. Now hold the cover slip on the counting chamber with a rubber band. The chamber can then be held up to the light and the corpuscles will not slide across the field. The counting is done with a small pocket hand lens. A sixty-cent lens will do, but there are more powerful lenses on the market that are hardly larger than a pea and are even better. A single frosted electric bulb gives the best light but a lamp or most any single light will do. The knack of seeing the corpuscles and lines well enough to count them lies in holding the counting chamber and lens absolutely steadily in focus. This is easily done by grasping both with both hands so that the same fingers are in contact with both the lens and the counting chamber, thus preventing any tremor between them. Hold to the light and count. Occasionally a counting chamber is found on which the lines are not sufficiently distinct. The acetic solution should be filtered. It is easy then to tell white blood corpuscles from platelets. The reds cannot be counted in this way.

2. If the blood is gathered in pipettes and carried to the laboratory to be counted, the rubber band which is generally used to hold the blood in the pipettes, is often perforated by the point of the pipette and it is found with dismay that the blood has leaked out. Here is a device which prevents leakage, is quick of application and will fit in the case (see accompanying illustration).

Description.—In the bottom of a BB cartridge, a disk of rubber is cemented. The cartridge fits over the end of the pipette and by its rubber false bottom keeps the blood from escaping. A straight wire with a hook at one end is soldered to the cartridge. Another piece of wire twisted into a ring and also with a hook on the end is slipped over the other end of the pipette. An ordinary rubber band connects the two hooked ends of the wires and pulls them toward each other.

Procedure.—To apply the device fill the pipette, bend the rubber tube back on it, slip the wire ring over the tube end and pull down the cartridge, stretching the rubber band till it slips over the pointed end of the pipette as in the diagram. There is a short lever arm to the wire with the ring, by virtue of which the ring squeezes the rubber tube tightly and prevents the escape of blood.

240 Stockton Street.

Therapeutics

THERAPEUTIC VALUE OF MEDICAL INSPECTION OF SCHOOL CHILDREN

It is not the object of this article to discuss the advisability of the various municipal governments assuming more parental care of children, but to show that regular inspection of school children, whether by physicians appointed by the local government, or by private physicians selected by the families, is of enormous value in preventing the development of disease and of abnormalities in children from seven to fourteen years of age. It requires no discussion to assert that if a community compels a child of school age to go to school, the same community must protect that child from harm while obeying the community's mandates. In other words, the light, temperature, ventilation, air space per individual, and height and character of the chairs and desks on the one hand should be as near perfect as possible, and on the other hand a child suffering from contagion of any kind or one who has been exposed to contagion and is therefore likely to become infected, should not be allowed to enter the school building. This primarily means that the building committee of every schoolhouse should have in its membership one or more medical men capable of passing on the requirements of a healthful building. Secondarily this presupposes the inspection of school children to prevent the spread of contagious diseases, and the establishment of such rules by the boards of health as is necessary to control a contagious disease and prevent its causing infection of others.

It also seems to require but little discussion that, when the authorities decide that a child should be compelled to use his eyes and ears systematically, it should know that these organs are in perfect condition, or made as near perfect as possible. In other words, the eyes and ears of school children should be inspected by some one competent to decide at least approximately whether the eyes or ears need scientific examination.

This still leaves open to discussion the advisability of the examination of children by medical inspectors appointed by the authorities, perhaps by the board of health, perhaps by the board of education, or by a com-

bined committee from both boards, once or twice a year to determine the physical condition of each school child. This would mean briefly an examination of the bones for curvatures and other deformities that could be corrected orthopedically, to examine the heart and lungs, to examine the teeth for cavities that should be filled and for decayed roots that should be removed, to decide whether or not the child has adenoids or obstructed nares which should receive attention, and especially to decide as to the general physical condition of the child, viz., as to his health or debility.

One cannot see how there can be any question of the preventive value of such an examination. Whether such examination should be made hastily by a public inspector, or more carefully by the family physician is open to discussion, but, certainly, if we are to have a robust nation each child should be medically inspected regularly, early in the fall, before he starts on his school year. It may be ideal, but it is good sense that a child should not be received as a pupil until he brings a certificate of apparent health and ability to withstand the confinement of school hours for the succeeding year.

It is likely to be argued that the nation as a whole is a pretty well nation, and that such inspections have never been necessary. Such an argument is footless and without careful consideration of the facts of advanced civilization. Most diseases are as fatal (except tuberculosis and diphtheria) as they have ever been. It is not because diseases are not better and more scientifically therapeutically handled, but because the nervous and circulatory strength of the individuals is very much less than it used to be. The nervous strain and tension of our lives, and especially the lives of our children, has enormously increased, and with all the advance in medical science it is just as difficult to bring a patient through a serious illness now as it ever was, perhaps more difficult. If there was no more medical knowledge than there was a hundred years ago, and if patients were treated therapeutically as they were a hundred years ago, most patients would die. Therefore, although medical knowledge and science have advanced, the difficulties of caring for patients who are ill have increased. Hence every possible method of prevention of disease and of the development of a disability, and of the growth of a tendency to disease should be utilized.

In the crowded city schools the whole aim seems to be to push the child mentally and take but little notice of him physically. The crowded condition of the lower grades is the ever present stimulus to push a child up to the next grade and to push him mentally until he is able to take part in the work of that grade. Consequently, the age of graduates of each grade is growing younger, and a child that is kept back from sickness becomes ashamed to enter the grade of his mental knowledge. All this is economically a mistake. Every physician will testify to the difficulty encountered with the parents and the child when he urges the removal of a child from school because he or she is debilitated. The whole family urges that the child may be kept at school until the end of the term, lest he lose his class, and they suggest all sorts of subterfuges to get around the desire of the physician to keep the child in the fresh air, away from school and away from all school work. The results of these school methods and the foolish pride of families are shown by the large number of growing boys and girls just before and just after puberty who are far below par physicially. A certain percentage of these children never regain their physical strength.

To offset the methods that tend to physical debility, school gymnasiums and athletics have become distinctive of this age. An enormous amount of good is done by such athletic work, but also a lot of individual harm is done by severe athletic work being undertaken without medical supervision or jurisdiction. A child physically not strong competes with its fellows who are strong, and the result is, sooner or later, a physical wreck. Also, the rapid growing child, especially the boy, competes with the boy who has grown slowly and sturdily. The circulation of the rapidly growing boy, the heart especially, has not grown as rapidly as the rest of the boy, and it is constantly working at a disadvantage to overcome the extra work required of it, and if severe athletic work is added to its requirements it is insufficient and soon shows injury. In the case of girls, they may not do as severe athletic work, but they take injudicious athletic exercise, such as bicycling and tennis at periods during their establishment of puberty which means future trouble and possibly life long harm. Also these girls, who by the nature of the conditions and the stimulation of the physiologic secretions which they have during the establishment of puberty, are nervous, irritable, and neurotic. To Nature's disturbances are added excessive school work and the stimulation of competitive work, with the addition of the home pride causing them to take up the study of accomplishments, music and dancing, all during the period when the girl should be resting both mentally and physically. Added to this is the ever increasing tendency of the young growing girls and boys (and it is the girls who receive the most harm) to have evening social gatherings and dances, even to late into the night; in fact everything in the amusement line at this early age, which leaves to the girl or boy of nineteen or twenty but little that is new in amusements. This causes many of our girls to be neurotic and perhaps neurasthenic for the rest of their lives, much to the discomfort and disturbance and unhappiness of their families.

General medical inspection and the advice that is simply a corollary of such medical inspection would soon educate the public to the better care of its children. The advice of the individual physician without the general consensus of opinion is not nearly of as much value as it would be if general inspection was required.

It would be time well spent for every physician who has not read the book on "Medical Inspection of Schools," by Dr. Luther H. Gulick and Mr. Leonard P. Ayres, to read it. This book is published by the New York Charities Publication Committee.

At a recent meeting of the New Haven Medical Association, Dr. J. W. Seaver, of New Haven, president of the Chautauqua School of Physical Education and former medical director of the Yale Gymnasium, opened a discussion on the subject of medical inspection in public schools as follows:

> There are few, if any, topics of more interest to the person who considers the welfare of the state than the training of the children, and for no one purpose do our citizens pay so large a tax, and no part of the general tax is paid so willingly. Of course there are a few people still permitted to reside in this part of the earth who think that for the public, the city, the town, to undertake to provide mental or any other form of training for the children within its borders is unjustifiable; but this coterie of antiquated intellectual maidens need not be considered as their objection is merely based on a natural timidity and a suggestion of socialism has thrown them into hysterics. Their condition is not as bad as it seems.

It must be assumed that the public school is here to remain and it behooves us to make the institution as helpful to the state as it can be made and to give it the thought and direction that so large an outlay in any direction should demand. This being a form of government where the initiative and control rests in the hands of the people, that is in our hands, it remains for us to make reasonable demands of our officers who are in charge of public organizations and to work for the formulation of these demands. I conceive this to be our purpose at this meeting. We are to create and crystalize sentiment, acting as citizens and as specialists in the subject of health.

What is a public school? It is an institution designed to give mental training to the children of certain ages at the expense of the people. Everybody being taxed for the support of the schools and the schools being utilized only by those who have children of suitable age, there must be some conceded benefit to the public from this expenditure to warrant the taxation. This has been estimated in terms of increased efficiency in the new prospective citizen and in some countries it is considered that the youth owes the state a certain definite service as a return, in part, of the expense that has been incurred on his account.

But while the manifest purpose of the school is to give mental training it has been found that this is only one phase of a complicated subject; that mentality of high order is not secured by mental gymnastics alone, but that it is a structure that is erected on a purely physical basis; that mental processes are strongest and most normal when they are accompanied by appropriate physical activities, and that a proper mental training is possible only when the body is kept in certain hygienic fitness by its functional activity.

No less an authority on education than G. Stanley Hall has said that for every thought there is a muscular response and that thought without previous sensory impressions is impossible.

If, then, we are to start with the idea of giving the best mental training to the boys and girls of our city we must coordinate the work of the teacher in the school room with that of the person who is trained to understand the correct hygienic environment of the pupil and to discover whether or not the pupils' receptive areas for sensory impressions are in normal condition, or in as near an approximation to that standard as is possible.

They must also be trained to appreciate the fact that a large number of the diseases from which humanity suffers are contagious or infectious in character, and understand the ways in which these disastrous diseases are prevented or restricted to the fewest possible under the general conditions under which we must live.

Up to the present time the only people who are thus trained are the doctors, and there is a burden of responsibility laid on them by the very fact of this training that we have not met by adequate activity and interest in the school problems of this city and state.

In the Winchester factory, near by, every part of the material is examined and every part is inspected and tested so that the finished product is as near perfect as the skill of man can produce, and the result is reliable service. Suppose the same persistent attempt to turn out the best possible product from our schools for the service of the world were to be established as a working principle in their management. Would not the quality of the product soon reimburse the slightly increased outlay? Obviously the same rules of administration will accomplish the same ends in either place.

What, then, would be the result of expert supervision of the school children and their housing and management during the school period of their lives?

In the first place, we would not expect the impossible from the pupil but we would first examine the child to see if the various organs were in satisfactory condition for functioning according to the demands of the school life. Any error that could be corrected would be reported to the parent and its importance stated. If it could not be remedied the teacher would be made cognizant of the difficulty under which the child worked and would be able to meet his needs in a fuller and more sympathetic manner.

But suppose the parent is indifferent to the welfare of the child and ignores the advice. The parent is rarely indifferent but he is often suspicious and negligent. Often he is poor and helpless. It is all well enough to say to a parent, your child needs the care of an ophthalmologist, or a rhinologist, or a dermatologist, but that will not produce the fee that must be paid, nor will it drive the self-respecting parent to the dispensary. Something ought to be done, and it would seem to me the part of good economy in the manufacture of citizens to have these children cared for by the city when the parent does not meet the responsibility. To turn out a bright mechanic, or merchant, or policeman; is better than to turn out a poor day laborer without ambition or confidence in himself to struggle vainly for the necessities of life and finally have to fall back on the public for the care that his old age demands and that is given alike to the unfortunate and the incapable.

The work done by Dr. Cronin in New York when he examined the pupils in one of the truant schools shows the needs of this hygienic inspection, for over ninety per cent. of those children needed medical care. He took 87 of these children who were suffering from adenoids or enlarged tonsils, or both, and had them treated in one day, and only three of them lost time in school and many of them advanced in scholarship to the extent of three grades during the remainder of the school year. Those poor unfortunate children had been made to compete with children not so handicapped, and the result had been that they had become discouraged and played truant, for they did not like the feeling of continued disgrace. When they were set free they made ample return for the care that was given them, and as citizens, who can compare their probable worth with the forlorn, discouraged, incompetent group of mouth breathers that would have been the output of that school had nothing radical been done.

The eye is the tool by which mainly information is obtained in school, and to know that this implement is fitted for its work is of the highest importance. To expect a child with poor vision to do good work in school is like asking a mechanic to turn out well finished work with dull tools. We convict ourselves of stupidity when we expect it.

As to the guard against contagious diseases, I shall say almost nothing, for others will show what can be done and what has been done. Every disease that is detected in its incipiency is a saving of many lives and a greater amount of money than has ever been paid to any inspector. To neglect this side of the school life is the old penny wise and pound foolish policy. It costs no more energy to march in front than to drag along in the rear.

While a number of the cities have furnished valuable statistics obtained by medical inspection in schools, the following results obtained by Dr. W. Matthew Kenna, of New Haven, have not before been announced, and are well worth presentation. Besides the results of his inspection of 400 school children in a new and perfectly equipped school building, Kenna introduces his statistics with some thoughts worthy of consideration:

The necessity for the medical inspection of school children in this country as yet has not been generally accepted. In but one state in the union has there been taken legislative action requiring all the pupils in the state to undergo medical inspection. That is Massachusetts.

Including the cities and towns of that state there are only about 70 places in the United States which at the present time officially recognize the desirability of medical inspection and which make provision for such inspection to take place.

As in every other matter of this kind, there are arguments for and against the institution. Those who are most conservative, realizing the always present danger of paternalism of any kind make protests which at best are of compromising nature. They believe either that the health of the school children should essentially be dependent upon the acumen and solicitude of the respective parents or others in intimate touch with the home life; or that at most the pupils should be inspected only so far as to protect them from the invasion of contagious disease.

Many more enthusiastic citizens, however, are of the opinion that not only should children specifically, while in attendance at school, have some kind of medical supervision, and not only should they be guarded from the dangers of contagious disease, but in addition that they should be looked after in the matter of constitutional defects—defects capable of retarding development, both physical and mental.

This idea has its application not alone in an expression of sympathy and interest in the child himself, not merely in the general protection to the community, but in an economic sense as well. For it is practical to consider (if we care to look at it from a mercenary standpoint) that much money is being wasted yearly upon the education of children who are retarded by physical conditions which if corrected would render them more amenable to the standard required.

We may take three view-points of the relation of the child to the matter in hand.

1. Has the child, while in attendance at school, any need of medical supervision?
2. The relation of the child to the community at large.
3. The consideration of the child as an individual.

Let us take up the first proposition. If we allow that the school is merely an incidental to the scholar's home, that his attendance at school is simply an excerpt from his daily life and that the parental surveillance is only temporarily obscured—if we look at the matter from this standpoint alone, then it is reasonable to assume that the care of the child's physical condition should devolve on the parents, and that there is no need for school medical inspection.

But it is easily recognized that there is a relation between school children and the community at large and that as carriers of contagious diseases they are a constant menace to that community.

Addressing ourselves to this, the second viewpoint, it is obvious that there is good reason for attempting to prevent as well as can be the dissemination of disease, both for the scholars' sake and for that of those with whom they may come in contact. And so if we grant the advantage to be gained from the mutual protection of the child and the community from contagious diseases it is not a far cry to the consideration of the third view-point, taking the child as an individual, and bearing in mind his possible constitutional physical defects.

How about the child himself? Is he entitled to supervision of a medical nature that may uncover bodily defects which otherwise might not be recognized and which might have a restraining effect on his fullest development? If we answer yes and accept this viewpoint then there is the fullest justification for a thorough and complete medical inspection in the school. Take, for instance, the matter of the common adenoids. It is undoubtedly true that many children suffering from these growths are never taken to a physician for treatment. This may be due to either ignorance or carelessness on the part of the parents. At any rate, there is lack of initiative on somebody's part and the children go through several years of their lives severely and unjustly handicapped.

Assuming that the tendency of such defects is to disappear as the child grows older, yet we must reflect how much better off he might have been had the lesion been eliminated. There is plenty of precedent for the adoption of a thorough medical inspection of our own schools. Several European countries as well as Japan have at the present time inspection which is national in its scope. There the inspection is rigid to an extreme degree, and there are many evidences of the benefit to be derived from the thorough examination of the school pupils. The very fact that these countries, like Germany, England, and Japan, are of the so-called military type throws out the hint that they are looking to the future with a practical as well as sentimental eye.

Medical inspection as related merely to the prevention of contagious and parasitic diseases has its value unquestionably. But the ideal inspection would be that which not only concerned itself with those diseases, but would also turn its investigating attention to the physical defects barring the child's school progress.

Here in New Haven, as you know, the medical inspection of schools relates more especially to the detection of contagious and parasitic diseases and the elimination of vermin. That some good has resulted may be emphasized by the fact that since the inception of the inspection, impetigo, which was formerly very prevalent among the children, has been practically stamped out.

Medical inspection to be of greatest value must be more or less of a cooperative nature. It involves the working together of the visiting nurse, the teacher, the parent, the family physician and the medical inspector. Without such cooperation there is apt to be a break in the link and no ultimate results follow. Simply to find out that a child has some physical defect and to do nothing to alleviate it, accomplishes little. The essential point is to have treatment instituted, and this will not be effected unless some kind of pressure is brought to bear on the parents and their eyes opened to the necessity for such treatment. Under these conditions thorough medical inspection of the pupils will have been worth while.

Recently (spring of 1910) I made an examination of 400 school children taken indiscriminately. The results of the examination are shown in the accompanying table. An attempt was made to make three degrees of severity where lesions were apparent, and "A" denotes that a defect was present, but did not require treatment; "B" denotes that treatment was advisable; and "C" that treatment was imperative. The physical condition of the children was divided into three groups, viz., "good," "fair," and "poor." The examination followed was practically that which is required in the medical inspection of the pupils of the New York City schools.

TABLE OF RESULTS OF EXAMINATION OF SCHOOL CHILDREN

	Good.	Fair.	Poor	Total.
Apparent physical condition	171	104	125	400
	A	B	C	Total.
Adenoids	19	35	2	56
Anemia	31	16	0	47
Cardiac disease	5	10	0	15
Defect of nasal breathing	23	4	0	27
Defect of palate	0	0	1	1
Defect of teeth	60	68	59	187
Skin: Contagious	0	0	1	1
Parasitic	0	2	5	7
Vermin	2	2	52	56
Hypertrophied tonsils	64	46	1	111
Orthopedic defect	9	3	0	12
Pulmonary disease or tuberculous condition	1	4	0	5
Enlarged glands	15	2	0	17
Vision: Myopia or astigmatism	8	63	11	82
Conjunctivitis	7	0	1	8
Granular lids	8	1	0	9
Nervous diseases	13	7	1	21
Malnutrition	22	11	0	33
Defect of hearing	1	5	0	6
Backwardness	47	0	0	47

Formaldehyd Solution for Treatment of Appendix Stump.—Dr. A. Merrill Miller, Danville, Ill., writes: Whatever may be the ideal method of "treating the stump" of an appendix, well-informed and conscientious operators still entertain opinions widely divergent. Each group of men bases the treatment on their own, or perhaps a leading operator's, personal experience. The fact that equally good statistics, in use, are shown from the different methods, may make a suggestion in this matter appear superfluous. The septic mucosa is usually cut away, treated with phenol and alcohol, or inverted. Perhaps a combination of all three methods is used. Because the use of phenol is attended by necrosis, it seems that little is to be gained from this practice. Then, there is the additional loss of time in the application of alcohol. To overcome the objection of a chemical necrosis in the base—an ideal place, it seems, for the proximate intestinal bacteria to multiply—I have adopted the practice of mopping the stump with 16 per cent. formaldehyd solution. This favors mummification of the tissues, destroys the mucous membrane, and may tend to limit small hemorrhages if the stump is not tied. Certainly a dry mummified stump is a less desirable place for bacterial growth than the raw, sloughing surface following the phenol application. Especially is this true if the stump is not inverted, or covered. The likelihood of adhesions from such tissues is less than by the use of any other method with which I am familiar. The amount of time—thirty seconds—consumed by this simple procedure is no reasonable objection to its use.

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THE IMPORTANCE OF THE TYPHOID-CARRIER

Evidence is accumulating that the share of the typhoid-carrier in disseminating infection has not been overestimated. The intensive study of typhoid fever by German investigators in the Rhine provinces has been frequently referred to in THE JOURNAL and has definitively established the fact that in the rural districts of Alsace-Lorraine and the Palatinate the major part is played by contact infection. Much more general conclusions may now, however, be drawn. It is safe to say that a large part, perhaps the largest part, of the "residual" or "prosodemic" typhoid observed in a community possessing a pure water-supply is to be attributed to contact infection. Even milk-borne epidemics are being traced in a surprisingly large number of cases to contamination of the milk by bacillus-carriers at the time of collection or in the course of distribution. The facility with which typhoid bacilli multiply in milk naturally renders this foodstuff a relatively common vehicle of disease, but the way contamination of the milk occurs is in many cases precisely similar to the mode of contamination of any other article of diet. There can, furthermore, be no doubt that a part of the danger lurking in open privies is due to their use by unrecognized carriers, using this term in the broad sense. Well-defined cases of typhoid are, of course, responsible for some scattering of infection of this character, but much also must be laid at the door of the "walking" patients, the healthy carriers and the obscure cases. To these are now to be added those individuals who, as shown by Conradi, Mayer and Drigalski, may be discharging typhoid bacilli in the stools or urine for as long as eight, eleven, or even twenty-five days before the malady has become clinically manifest. The recent discovery that children suffer not infrequently from a mild, ambulant, unrecognized form of typhoid[1] is also important in this connection. Several epidemics in western Germany have been traced to clinically unrecognized cases of this character. Altogether the living distributors of typhoid bacilli make up a formidable array.

It does not seem worth while to discuss the singular stand taken by Delorme in his recent communication to the French Academy of Medicine.[2] No one cognizant of the evidence can maintain to-day that drinking-water is, in all places, the chief vehicle of typhoid or that contact infection is rare and exceptional. The success of the German campaign against rural typhoid, already referred to, is a demonstration of the efficacy of measures undertaken to prevent spread by contact. The number of cases in the infected district, which in 1904 was 3,487, was reduced in five years, by the measures against contacts and carriers, to 1,648. It is equally idle to dispute over the relative share at the present day of water and other sources of infection. Water, especially in this country and in France, is too commonly the means of communicating typhoid fever. That this is so should not lead us to overlook or to minimize other and equally well-known possibilities of communication.

Perhaps one reason why typhoid fever does not diminish more rapidly when cities substitute a pure water-supply for a polluted one is that in such cases there is a legacy of carriers handed on from the days when water-borne disease prevailed excessively. The carriers produced by years of infected water-supply do not disappear at once, but linger on and generate new foci long after the original trouble has been removed. Every city that continues to tolerate a polluted water-supply is not only suffering present injury, but also is storing up for itself future trouble, by accumulating a crop of carriers which may continue for long years to plague it.

One thing at least is plain, that the problem of residual or prosodemic typhoid is largely—perhaps mainly—the problem of the carrier. Difficult and often impossible to track to his lair, still more difficult when cornered to deal with fairly as an individual and rigorously as a public health danger, the carrier is coming to be more and more an object of serious concern in the fight against typhoid fever. A hopeful feature of the situation is that the effect of preventive measures is cumulative. Progress in the purification of water-supplies will in the long run decrease the number of carriers. The discovery and control of a single carrier, particularly in occupations such as the purveying of milk which involve special danger, may be the means of preventing the formation of many new carriers. It may be that the gradual elimination of the carrier is one reason for the steady diminution in the amount of typhoid fever observed during the last few decades, even in communities like Munich or The Hague, which have long been blessed with uncontaminated water. At all events, the carrier cannot be lost sight of in any attempt to control typhoid fever at its source.

1. See abstr. of article by Brückner, The Journal, July 16, 1910, p. 261.

2. See Vaillard: Ann. d'hyg. pub., 1910, xiii, 5.

FARMERS' BULLETINS

One of the objections urged against the establishment of a national Department of Public Health has been that such work does not properly belong to the federal government. As a matter of fact, the national government is already carrying on exactly such work as would be developed by such a department, but it is being done under the authority of one or more of the existing departments. As has been already pointed out in the hearings before the house and senate committees, what is desired in the establishment of a specific health bureau or department of the national government is not so much the inauguration of any new work, as the extension, correlation and systematization of work already being done in various departments. This is well illustrated in a circular recently issued by the Division of Publications of the United States Department of Agriculture, giving a list of the "Farmers' Bulletins" issued by the department. In past years a large number of pamphlets containing valuable information by experts has been issued by the Department of Agriculture, being inaugurated originally to convey to the farmer the necessary information regarding animal and vegetable pests, etc. This work has since been expanded so as to include pamphlets on almost every subject that relates to the farmer's physical or material well-being. Whatever improves the health of the farmer and his family would also improve the health of the citizens who were not farmers; yet, as the Department of Agriculture has authority to issue bulletins to farmers but not to the citizens, these pamphlets are sent out as "Farmers' Bulletins." A glance at a few of the titles is interesting. No. 34, "Meats, Composition and Cooking;" No. 85, "Fish as Food;" No. 93, "Sugar as Food;" No. 121, "Beans, Peas and Other Legumes as Food;" No. 128, "Eggs and Their Uses as Food;" No. 182, "Poultry as Food;" No. 249, "Cereal and Breakfast Foods;" No. 375, "Care of Food in the Home," No. 377, "Harmfulness of Headache Mixtures;" No. 391, "Economic Use of Meat in the Home," etc.

It would be difficult to show why the national government should be any more interested in the food of the farmer than in the food of any other citizen, or why pamphlets such as those cited above, if good for the farmer, are not good for all other citizens. It is also difficult to see how the publication and distribution of such pamphlets in any way interferes with "personal liberty" or "forces one to accept medical services which he does not desire." In fact, the effect of such publications would seem to be to diminish the need for medical services of any kind.

A number of the pamphlets are worth noting as showing the interest of the government in diseases of plants and animals. Some of these are: No. 28, "Weeds, and How to Kill Them;" No. 30, "Grape Disease on the Pacific Coast;" No. 82, "The Culture of Tobacco;" No. 91, "Potato Diseases and Treatment;" No. 99, "Insect Enemies of Shade-Trees;" No. 110, "Rice-Culture in the United States;" No. 113, "The Apple, and How to Grow It;" No. 120, "Insects Affecting Tobacco;" No. 127, "Important Insecticides;" No. 152, "Scabies of Cattle;" No. 155, "How Insects Affect Health in Rural Districts;" No. 177, "Squab Raising;" No. 205, "Pig Management;" No. 379, "Hog Cholera."

The independence and personal freedom of the farmer does not seem to have been invaded by the publication and distribution of these pamphlets, neither has their preparation been controlled by an "agricultural trust." If similar publications on child culture instead of asparagus culture, or on infant management instead of pig management, were prepared by a properly organized health department, would the liberty of the people be endangered? Why should the government prepare and distribute pamphlets on "Grape Diseases on the Pacific Coast" and yet have no information for its citizens on water diseases in the Mississippi Valley? The series of farmers' bulletins prepared by the Department of Agriculture is most praiseworthy and valuable, but the government should abandon the subterfuge of authorizing such life-saving work under the name of "Farmers' Bulletins" because it has a Department of Agriculture and not a Department of Public Health, and should establish instead a department adequately equipped to advise all citizens regarding matters affecting their health and well-being.

EHRLICH'S NEW REMEDY FOR SYPHILIS

A new remedy for syphilis, recently announced by Ehrlich and Hata, under the somewhat mysterious name "606," seems to have been received in Continental medical circles with unwonted enthusiasm. This is shown by reports already published in our Berlin letter and the communications of our Budapest and Berlin correspondents in this issue and by the abstract in our Miscellany Department. The new product is the result of a long series of experiments carefully planned with the end in view of finding a remedy which will destroy spirochetes, particularly those of syphilis.

It is claimed to be an example of the complete destruction of the pathogenic agents of a disease by a medicinal product acting within the organism. It consists of a compound of arsenic allied to arsenilic acid and possessing the composition indicated by the name dioxydiaminoarsenobenzol. Apparently it was selected out of a large number of similar compounds by experimental trials, and only after numerous successes on apes and other animals was tried on man. The results as described by Wechselmann,[1] Neisser,[2] and others, impress one as being little short of marvelous. The startling statement is made that spirochetes begin to disappear from chancres and condylomata in a few hours and

1. See page 617, this issue.
2. Berlin. klin. Wchnschr., July 4, 1910.
3. Deutsch. med. Wchnschr., June 30, 1910.

are completely gone in from twenty-four to forty-eight hours. Syphilitic lesions such as rupia, papules, ulcers, etc., we are told, heal with remarkable rapidity.

Considering the reputation and standing of the men who make the announcement, it seems possible that an agent more active and more powerful than mercury is about to be placed in the hands of the profession to be used against one of the most dreadful diseases from which humanity suffers. Considering its character it might be supposed that the remedy would be a dangerous one and yet it may not be. Arsenic is such a potent drug, however, that involuntarily the cautious think of the old saying: "Timeo Danaos et dona ferentes"—"I fear the Greeks even when they are bringing gifts."

The remedy is not yet on the market and probably will not be until the present uncertainties regarding dosage, mode of administration, etc., are cleared up by further investigation in hospitals. Meanwhile, it would be well to receive the various reports with due conservatism, bearing in mind the natural tendency to optimism on the part of those conducting such important investigations which seem so full of promise.

Current Comment

THE DRAMA OF SANITATION

A moving picture playlet illustrative of the dangers of impure milk is reported in preparation. Camera men have been snapping unhygienic farms to this end. The first scene represents the son of an old-fashioned, bacteria-despising farmer returning to the old homestead with his wife and little boy. The filthy cow-barns, the open pails of milk receptive to dust and flies are depicted with unsparing realism. The son, who has imbibed wholesome education in hygiene, protests passionately against the old order, but in vain, whereupon the young couple pack their trunks, leaving the old farmer in tears over the deserted baby-carriage of his grandson. The rural scene is then changed to an urban one. The formerly happy home of the old farmer's son is grievously distressed because of the baby's illness. The family doctor shakes his head and, pointing to the milk-bottle, indicates plainly the cause of the illness. The grief-stricken son writes to his father (letter flashed on the screen), who comes in haste, and finds, to his great anguish, that the bad milk has come from his own farm. Emotional climax! The play, however, ends happily; the farmer's barns are shown repainted and wonderfully refurbished, the cows washed, the dairymen in white suits presiding over now impeccably sanitary functions. The little patient? Evidently the family doctor has done something more than shake his head, for, miraculously restored to health, the little boy, held by his repentant grandparents, watches with interest the hygienic proceedings. Such a representation might amuse the highly intellectual, but it should certainly be of value in reaching that part of the community which would take it seriously and which would be impressed by the scientific lessons embodied in it. Of well-proven value is a similar moving picture representation of "the filthy fly," which is being shown in our cities under the auspices of the American Civic Association.

FILTH AND TYPHOID

There is usually more than one aspect to a disputed question. This is true even of the celebrated Budd-Murchison typhoid controversy, which is so often declared to have ended in the complete overthrow of Murchison, horse, foot, and dragoons. No one, of course, believes to-day Murchison's hypothesis that the typhoid virus is generated spontaneously or *de novo* in decomposing organic matter, but it is clear that his observations on the connection between typhoid fever and filth were in themselves quite sound. The modern discovery of the existence of healthy typhoid bacillus-carriers, who have never had the disease themselves, explains why it is sometimes impossible to trace every case of typhoid to an immediately preexisting case. Since the hunting down of all carriers is practically impossible, it is necessary to deal with fecal accumulations in general as if they were definitely infectious. The open privy or earth-closet in city or country must be regarded always as potentially dangerous. We should not forget that accumulations of filth of any character tempt to further additions. It is a waste of time to try to prove filth innocent. If we assume it to be guilty from the outset, we are taking no unnecessary chances.

IT PAYS

We learn from a Denver correspondent that one of the vice-presidents of the "National League for Medical Freedom" was in that city recently organizing a "branch" of this latest enterprise of the "patent medicine" interests. This gentleman, who when not more profitably engaged runs a small country newspaper, is going about the country organizing forces—as though they were not already organized!—to fight the wicked "doctors' trust." Our correspondent says that while in Denver the "organizer" engaged an expensive suite in the most expensive hotel in the city! Verily the lines of this "trust-buster" have fallen in pleasant places.

RATTLESNAKE BITE

Every little while some one makes the statement that the rattlesnake bite is not fatal. This time it seems to have been announced from a medical society in Colorado, and a mud poultice is said to be a remedy sufficient to prevent evil effects. It is probable that the small rattlesnake of the western states, the so-called massasauga, is comparatively innocuous; that is, its bite is not necessarily fatal. But anyone who will make the assertion that the bite of one of the larger species is not serious enough to be dreaded goes against the experience of the medical profession, many of whom can give instances of fatalities thus caused, and that; too, in spite of treatment.

A NEW FORM OF HUMAN TRYPANOSOMIASIS

Dr. Carlos Chagas, a physician of Brazil, is reported to have discovered a new form of human trypanosomiasis. It is caused by a trypanosome which he has named *Schizotrypanum cruzi*. The parasite was discovered by him in the hind gut of a large biting bug, locally known as "barbeiro," which infests in large numbers the hovels of the poorer working class, remaining hidden during the day and issuing forth in the dark. This bug belongs to the *Hemiptera heteroptera*, family *Reduvidæ*, genus *Conorrhinus*, is more than an inch in length and bites its human victim chiefly on the face. The course of the disease seems as yet imperfectly known. Children especially are attacked and the illness is characterized by extreme anemia, edema, general or partial enlargement of lymph nodes, thyroid and spleen, functional disturbances, especially of the nervous system, and frequent imbecility. The mortality appears to be great, death being often attributed to convulsions. The disease closely resembles ankylostomiasis, but is easily differentiated from this by an examination of the feces. The disease also differs from the African trypanosomiasis in that somnolence as a symptom is never present. A detailed report is contained in the sixteenth *Bulletin of the Sleeping-Sickness Bureau*.[1]

Medical News

ILLINOIS

Infant Mortality at Springfield.—The monthly report of Dr. George T. Palmer, health officer at Springfield, shows that during the month of July there was an increase in the death rate of infants under two years of age of about 35 per cent.

New Hospitals.—As a first step toward the establishment of a much-needed hospital at Sterling, the city council recently appropriated $500 to be used for hospital purposes.——The cornerstone of the new Monmouth hospital was laid August 2. J. B. Brown delivered the address.

Personal.—Dr. William M. Johnson, Johnsonville, nestor of the medical profession of Wayne County, has been elected president of the county medical society. Dr. Johnson is 81 years old.——Dr. Will H. Perry has been appointed pension examining surgeon at Sterling to fill the vacancy caused by the death of Dr. Alexander C. Smith.

Advocates Hygienic Experiment Station.—At the meeting of the Summer School at Havana July 26, Dean E. J. Townsend of the University of Illinois, in an address on "Science and Public Service," suggested a plan for the establishment of an experiment station of sanitary sciences and preventive medicine, to work alongside of the agriculture and engineering experiment stations of Illinois. He declared also that education of the public as to the sources of danger is equally important. He called attention to Chicago as a good illustration of what a scientific and efficient leadership in sanitation can accomplish, pointing out that Chicago has now the lowest death rate of any American city of more than 350,000. His plan for an experiment station included the following features: That it should supplement the work done by the state and municipal boards of health; that a laboratory of physiologic chemistry should be maintained, in which questions of human nutrition could be studied; for the conduct of a bacteriologic laboratory; for the creation of a laboratory of sanitary science in which problems arising from water supplies, sewage disposal, etc., and their relations to public health should be investigated; for the establishment of a department of medical research, not for teaching, but for inquiry into the cause and prevention as well as cure of such diseases as have not yielded to medical treatment.

Chicago

The Typhoid Campaign.—Dr. Leslie L. Lumsden, who is conducting the campaign against typhoid fever in the city, requests a meeting of physicians to discuss the situation. The medical societies of the city have no regular meetings during the summer and it is desired that special meetings be called.

The Weather and Mortality.—According to the bulletin of the health department July had a 6 per cent. higher death rate than the average of that month for the last ten years, and 23 per cent. higher than for July, 1909. The weather during July averaged 3.6 degrees above the normal of the month. It was the hottest July in nine years, and the average temperature was exceeded only once in thirty-nine years. While the death rate in infants was 42 during July this year, it was lower than the death rate in 1897 when it was 71 per 10,000 population, and lower than in 1901 when the death rate was 44, making the rate 45 per cent. lower than in 1897 and 5 per cent. lower than in 1901, in both of which years the temperature, though high, was not so high as in July of this year.

Plans Death to Flies.—John J. Davis, assistant state entomologist, in his experiments in the destruction of flies and fly larvæ, has found that a solution of iron sulphate is probably the best and cheapest agent. He advocates that experiments with this material in preventing the multiplication of flies should be conducted by the health authorities of Chicago in certain limited districts, and believes that a noticeable effect will be produced on the prevalence of intestinal diseases in the experimental area. In an experiment at Dunning a year ago, Dr. Pollock kept one ward screened from flies during the season. In that ward there was one case of intestinal trouble which lasted three days. In the next ward, which was not screened, there were seven cases in the same length of time and every one of these cases lasted from three to seven weeks.——A fly hatchery has been added to the city laboratory and Dr. John W. Viers is conducting experiments in the destruction of fly larvæ. Flies are being hatched in wire cages. It has been found that a phenol solution sprinkled on hatching grounds, on garbage and on manure will kill them.

Discuss Dumping Refuse in the Lake.—The question of the cooperation of the government in enforcing the law which prohibits dumping refuse in the lake within the eight-mile limit, recently referred to the chief engineer of the United States Army, has been answered in a communication from General Bixby, chief engineer, in which he says that the city of Chicago must mark the zone within which dumping is illegal by buoys and must provide inspectors to see that the law is enforced, as no money has been appropriated by Congress to enable the War Department to assist in the matter.

INDIANA

Personal.—Dr. Harrison Gabel, a physician at Centerville, was seriously wounded by being shot by a Civil War veteran, who is said to suffer from illusions.——Dr. William F. King, Columbia City, has been selected by the State Board of Health for special field duty in the study of epidemics or marked increase in any disease in any part of the state. On each mission, he will take exhibits prepared by the State Board, showing methods of combating the disease.——Dr. Clay A. Ball, Muncie, has been appointed deputy county health officer, to succeed Dr. Howard Drumm.——Dr. Jesse F. Davidson, Crawfordsville, supreme medical examiner of the Tribe of Ben-Hur, has been selected as assistant to succeed Dr. Royal H. Gerard, chief of the order. Dr. Alexander P. Fitch, formerly of Lebanon, has succeeded Dr. Davidson.——Dr. Adoniram J. Banker, Columbus, is critically ill.——Dr. Henry O. Bruggeman, Fort Wayne, who is now in Germany for study, has been elected president of the Anglo-American Medical Society in Berlin.——Dr. George H. Pendleton, physician at the Marion County Workhouse, has resigned, and Dr. Thomas Sullivan has been appointed to the position.——Dr. Samuel E. Smith, superintendent of the Insane Hospital at Richmond, has been appointed on a committee of the American Medical Association to welcome the International Prison Congress which meets in Washington, D. C., in October.——Dr. Hugh J.

1. Chagas' preliminary report was published in the *Brazil Medico*, May 1, 1910.

Downey, Middletown, N. Y., has been appointed resident physician at the Indiana Home Hospital, Terre Haute.

MARYLAND

New Hospital for Hagerstown.—Hagerstown is to have a hospital to cost $60,000. It will be built under the direction of Dr. Henry M. Hurd, of Baltimore. It will be of brick and stone with concrete foundation.

Personal.—Dr. Richard S. Hill, Prince George's County, has been elected director of the Department of Farmers' Institutes of the Maryland Agricultural College and Experiment Station. Dr. Hill is a successful farmer and tobacco planter and has been special state tobacco agent for the last four years. He is also president of the Southern Maryland Agricultural Fair Association. The law requires that the incumbent of the office shall be a practical farmer.——Dr. Arlington G. Horine has been reelected mayor of Brunswick.——Dr. Ira J. McCurdy, health officer of Frederick, urges an incinerating and reducing plant for disposal of garbage and suggests a cemetery for animals.——Dr. Pedro de Figamiere, Zion, Cecil County, has been appointed to a government position in Alaska.——Dr. Thomas Z. Offutt, Granite, 80 years old, is recovering from a severe attack of pneumonia. He has practiced fifty years and was a surgeon in the Confederate Army.

Baltimore

Typhoid Fever.—Fifty cases of typhoid fever were reported for the week ending July 30, double the number of last year; 77 cases were reported for the week ending August 6, with four deaths.

Personal.—Dr. G. M. Linthicum, ex-president of the state society, has entered the Maryland General Hospital for treatment for supposed typhoid fever.——Dr. Summerfield B. Bond sailed for a trip to Norway and Sweden, July 30.——Dr. J. George Schmetzer has been motoring in England and Scotland.

Accidents During July.—During July twenty-three persons were injured by falling objects, as milk bottles, etc.; forty-six persons were bitten by dogs; thirty-three were burned; twenty-five were overcome by heat; ten were accidentally shot; four took poison by mistake. The total of accidents was four hundred and eight.

More Provision for Infectious Diseases.—Dr. James Bosley, Commissioner of Health, says the provisions for the treatment of infectious diseases at the public hospital (Sydenham) are entirely inadequate. The ordinance founding it provided for the treatment of diphtheria, measles, scarlet fever and chicken pox. But the money appropriated was sufficient only for one ward. That has been divided into two sections, in which cases of diphtheria and scarlet fever are treated. Four wards are needed and it is proposed to ask the board of estimates for $60,000 to erect two new wards next year.

MINNESOTA

Free Dispensary for Duluth.—Efforts are being made at Duluth to provide a free dispensary, there being no such institution in the city at present.

No Appropriation for Tuberculosis.—The county commissioners at St. Paul are opposed to an appropriation of $91,000 asked for the support of a tuberculosis ward at the City and County Hospital.

Personal.—Dr. Clara M. Hayden, Clarinda, Iowa, has been made women's physician at the state hospital to take the place of Dr. Olive Thorne, resigned.——Dr. Carl B. Teisberg, St. Paul, has been appointed assistant physician at the county hospital.——Dr. Gustavus T. Newman, New London, has been appointed superintendent of the new hospital at the Minnesota State Prison.——Dr. William H. Rowe, mayor of St. James, has been appointed by the governor surgeon-general of the state militia to succeed Dr. Alexander J. Stone.

Southern Minnesota Meeting.—The eighteenth annual meeting of the Southern Minnesota Medical Association was held at Winona August 4. Important action looking to consolidation of the Southern Minnesota Medical Association with the Minnesota Valley Medical Association was taken. Dr. William J. Mayo, among others, favored the plan of union and a committee was appointed to confer with a like committee from the other association on the matter. The following officers were elected: President, Dr. Theodore L. Hatch, Owatonna; vice-presidents, Drs. Hugh F. McCaughey, Winona, and John E. Crewe, Rochester; and secretary-treasurer, Dr. William T. Adams, Elgin.

MISSOURI

Hospital Interns Resign.—Within the last month three of the interns at the City Hospital, St. Louis, have resigned on account of dissatisfaction with the food, their sleeping quarters and their personal treatment by the management of the hospital.

Circulating Medical Library.—The field covered by the library of the University of Missouri is to be extended over the state. On request the state librarian will furnish county medical societies with books for local circulating libraries. The library has recently added to the list of reference books several hundred books and periodicals on medicine.

New Hospital.—Mrs. Jane Chinn has donated $100,000 for the erection and maintenance of a hospital at Webb City. The Jane Chinn Hospital Association has been incorporated, and a building committee has been organized with Dr. Charles E. McBride at its head. He is also president of the board of trustees. The building and equipment will cost $40,000.

Changes in Washington University.—The 1910 catalogue of the Medical Department of Washington University shows that radical changes have been made in the faculty. Ten prominent St. Louis physicians connected with the school for many years have withdrawn. Dr. George Dock, who has recently come from Tulane University, New Orleans, to Washington University, has been made dean of the medical faculty. Dr. Horatio N. Spencer has resigned.

Personal.—Dr. William G. Rowe has resigned as county physician at Blue Springs.——Dr. Arthur A. Hobbs, Kansas City, has been appointed superintendent of the county hospital. He will also act as county physician.——Drs. Oscar H. Elbrecht and Willard Bartlett have been appointed surgeons of the consulting staff of the City Hospital, St. Louis.——Dr. William P. Patterson, Springfield, has been appointed chairman of the committee to arrange for medical examinations of the schools of St. Louis, Kansas City and Joplin.

Recommendations by Health Commissioner.—Dr. Walter S. Wheeler, health commissioner of Kansas City, in his annual report complains of physicians who fail to report reportable diseases and recommends that they be fined for violating the ordinance. He recommends an incineration plant for the disposal of the city garbage and urges more thorough milk inspection and a thorough campaign of education of the public in regard to tuberculosis. He also finds that there are five mentally defective children in every hundred of the 25,000 pupils enrolled in the city. He recommends that a separate school be provided for such defective children.

MONTANA

Nurses' Home.—A nurses' home to cost $15,000 is in course of erection at the Montana Deaconess Hospital, Great Falls. Three nurses were graduated from the training school of the hospital in June.

Personal.—Dr. John T. Foley has been chosen assistant county health officer at Lewiston to act in the absence of Dr. Willard A. Long, who is in Europe.——Dr. Eugene G. Campana has been made city physician at Butte.——Dr. Francis M. Flinn has been appointed surgeon, with rank of captain, of the battalion of the national guard, composed of one company at Libby and two at Kalispell.——At the annual meeting of the Antituberculosis League, Dr. Sisson of Butte was elected secretary; Dr. Atwood, Helena, treasurer, and Dr. E. M. Hunter, Livingston, chairman of the executive committee.

NEW JERSEY

Personal.—Dr. D. W. Blake, Jr., was elected medical inspector by the Gloucester Board of Education.

Infant Paralysis at Burlington.—Six cases of infant paralysis are reported in Burlington. None of them has so far resulted fatally, but all of the victims are believed to be incurably crippled.

Shower Baths.—The board of works of Newark, following an order of the board of health to close swimming pools in the public baths because they are considered unsanitary, have

directed that shower baths be installed without further delay, and all public baths will be thus equipped.

Millville Fears Smallpox.—The State Board of Health held a meeting at Millville August 4 to take steps to check an epidemic said to threaten the town. For the last two months, it is declared, there has been a score of smallpox cases wrongly diagnosed as chickenpox. Charges that physicians have been lax will be probed by the state board. A dozen homes have been placed under quarantine and wholesale vaccination has been begun.

Advocates Public School Clinic.—Dr. George J. Holmes, medical supervisor of the Newark Public School, urges the establishment of a public school clinic. This, if centrally located, would enable public school physicians to keep in closer touch with cases coming under their care and would result in a saving of time. Special classes for defective children and for the blind, deaf and dumb were authorized by the Board of Education.

State Board of Health Report.—The report of the State Board of Health for July shows that the increase of deaths from infantile diarrhea during the month is larger than for any corresponding period during the past five years, which is in line with the report from other states, amounting to 345 deaths as compared with the next highest figures, 202, for 1908. Typhoid fever deaths for July numbered 37, the average per month for the previous twelve months being 25. Six hundred and fifty-three specimens of milk were examined by the state laboratory, 609 of which were found to be above standard and only 44 below.

Decision Regarding Sewage.—The supreme court, in an opinion handed down July 20, holds that the Borough of Garwood may empty the effluent of its sewage disposal plant into the Rahway River. This action of the Borough of Garwood was approved by the state board of health under the provision of the law which gives state boards the same powers as were formerly held by the state sewage commission. In holding that the law is constitutional Justice Parker says that "the effect of the legislation is to make the state board of health *ex officio* the state sewage commission, as far as the sewage disposal plant and these proceedings are concerned."

NEW YORK

Medical Library for Schenectady.—A medical library consisting of 1,000 volumes has been loaned by the State Medical Association library at Brooklyn, to the medical society at Schenectady. It will be located in the public library building.

State Exhibit.—The state health department and the State Charities Aid Association have again arranged a schedule for the large state tuberculosis exhibit which will go first to Saratoga in September.

Temporary Tuberculosis Hospital.—The board of county supervisors at Rochester has established a tent colony on the county farm in Brighton for the care of tuberculosis patients from the County Hospital, on recommendation of the Rochester Public Health Association.

New President New York State Society.—By the death of Dr. Charles Jewett August 6, Dr. Charles Stover, vice-president, succeeds to the presidency of the Medical Society of the State of New York. He is a prominent practitioner of Amsterdam and physician to the City and St. Mary's Hospitals.

Personal.—Dr. Isham G. Harris of Poughkeepsie has been appointed superintendent of the new Mohansic State Hospital near Peekskill.——Dr. Edward H. Fiske, Brooklyn, was operated on at Oswego for appendicitis, while away on his summer vacation.——Dr. W. O. Smith has been made health officer at Falconer.

New Hospital for Children.—At a meeting of the fraternal organization committee, Dr. Montgomery E. Leary, supervising director of the Rochester Public Health Association, outlined his plan for establishing a children's hospital by all of the fraternal organizations of the city, and a committee was appointed to report later on the feasibility of the project.

New York City

Typhoid Fever.—For the week ending July 23 there were 59 cases of typhoid fever with 6 deaths; for the week ending July 30 there were 91 cases with 17 deaths.

Deadly Record for July.—During the month of July there were 18 persons killed and 153 injured on the streets of this city; of these 13 were children under 12 years of age. During the first six months of the year there were 93 killed and 522 injured.

To Enlarge Tuberculosis Clinic.—Plans have been filed for an addition to the tuberculosis clinic on the roof of the Vanderbilt Clinic at Amsterdam Avenue and Sixtieth Street. The addition will be a one-story structure. The laboratory of the clinic will also be enlarged at a cost of about $6,000.

Personal.—Drs. J. Morgan Howe, Alexander Lambert and W. K. Draper have sailed for Europe.——Dr. F. M. Shook, Medical Corps, U. S. Navy, has been detailed to conduct lecture and laboratory courses on tropical medicine at the New York Post-Graduate Medical School during the months of August and September.

Death Rate Continues High.—The death rate for the week ending July 23 was 18.80 per 1,000 population, while the rate for the corresponding week of last year was 16.96. The death rate in institutions was again higher, there being 608 deaths compared with 485 for last year. Dr. Lederle has appointed a committee to investigate the reasons for the high death rate in both public and private institutions.

Pure Food Laws Made Ineffective.—The ineffectiveness of the pure food laws is being attributed to the failure of the courts to impose as severe penalties as are warranted. There is no lack of industry on the part of those charged with the enforcement of the law in securing conviction for the offenders but the fines imposed are in many cases so trivial as to have no effect in securing obedience to the laws. For instance, in a sale of soothing syrup, guaranteed to be perfectly harmless but found to contain morphin, $10 was imposed; sales of four headache remedies, guaranteed harmless but found to contain acetanilid, resulted in fines of but $15 each; a fine of only $5 was imposed for selling a hair tonic and dye that was found to tend to the production of eczema. In a number of instances the court seems to have thought it has done its duty when it has ordered the destruction of the injurious articles.

New Plans to Care for Sick Children.—It has been decided by the health board that communicable diseases would have to be treated further down the bay than at the new hospital erected on Ellis Island by the federal government, and in consequence an offer has been made to the city through Congressmen Goldfogle and Bennett that the city rent this hospital from the government for sick babies of the tenements. The mayor approves of the idea and is consulting with the commissioners of health and charities on the subject.——Dr. Lederle has issued a half a million posters entitled "How to Keep Baby Well," which he hopes will have an effect in decreasing the high infant mortality of the present season. These posters contain the usual advice and admonitions and are printed in several languages.——The dock commissioner has also come out with a plan to help sick babies. He wishes the unused space in the city terminal buildings at South Ferry used as open air hospitals. Each building has a space 75 by 100 feet which would be available and could easily be fitted up if the city would appropriate the money.——The health department will post the following placard in every place where milk is sold in the greater city: "For infant feeding use certified or guaranteed milk, or bottled pasteurized milk. If you use either bottled milk or milk from cans, either raw or pasteurized, the milk should be brought to a boil before feeding to the babies."

Buffalo

Personal.—Dr. Charles G. Stockton has gone abroad.——Dr. S. Y. Howell spent two weeks in July at the seashore.——Dr. George Haller is taking a trip up the St. Lawrence.

Infantile Paralysis.—The Buffalo Academy of Medicine is making an investigation concerning cases of poliomyelitis in the vicinity. All physicians having cases to report are asked to notify either Dr. Irving M. Snow or Dr. Lesser Kaufman who will supply them with proper blanks.

Buffalo Selected.—In a cablegram from Health Commissioner Fronczak, who is attending the International Congress on School Hygiene at Paris, the announcement was made that Buffalo was selected as the next meeting place in 1913. The convention is held every three years. The competing cities were Rome, Cologne, Prague, Brussels and Budapest.

Contagious Disease Hospital.—Another session of the board of common council has come and gone without a solution of the question of site for the proposed hospital for contagious diseases. In the meantime the epidemics, especially of scarlet fever and now of pertussis, go merrily on. The sum of $18,000 is to be used to make the present makeshift hospital at least habitable.

Action on Death of Dr. Wende.—Resolutions adopted by the common council on the death of Health Commissioner Ernest Wende have been forwarded to Mrs. Wende by City Clerk Bailliett. The resolutions are morocco bound and bear the signature of every member of the common council. It was also voted by the common council to name the proposed hospital for contagious diseases the Ernest Wende Memorial Hospital. The medical profession sincerely hopes that this hospital will be so located, so built and managed as to prove worthy of the name.

Concerning Erie County Hospital.—After a public hearing on the matter of the proposed Erie County Hospital the committee of the board of supervisors has by request of the sub-committee on public health of the Chamber of Commerce and Manufacturers Club consented to postpone the final letting of contracts for six weeks. The proposition of the Chamber of Commerce is to have the city build a municipal hospital on the Driving Park site, of 825 beds and to include the proposed hospital for contagious diseases. The citizens of Buffalo look favorably on the project.

Whooping Cough.—Following the exceedingly great number of cases of measles there has been added an epidemic of pertussis. The health department is sending out sanitary inspectors to watch all boats, play-grounds and parks and will cause the arrest of all parents who break quarantine in cases of pertussis. There were 200 cases of pertussis reported to the department of health in July. This is a strong indictment against those who are opposing a hospital for contagious diseases because many of these cases are but a sequel of the tremendous epidemic of measles. During the past week there were seven deaths reported from whooping cough.

NORTH CAROLINA

Health Bulletin.—The Asheville City Board of Health, beginning May, has issued a monthly bulletin.

Shaw University Hospital.—Ground has been broken for the erection of a $20,000 hospital at Raleigh for clinical instruction of the students of the medical department of Shaw University.

Personal.—Dr. George A. Mebane, of Mebane, was a contestant for the democratic nomination for Congress in the Fifth North Carolina District, being defeated on the 438th ballot after a session of the convention lasting six days, by ex-Lieut.-Gov. C. M. Stedman, of Greensboro.——Dr. Philip Norris, of the Rutherfordton Hospital, was recently presented with a silver loving cup as a token of appreciation by the Rutherfordton baseball team.

Osteopath as Expert Witness.—In the trial recently in the superior court at Asheville, Judge Justice presiding, an osteopath was admitted and qualified as an expert medical witness in a case for damages against the Southern Railway, brought by a man whose child was struck on the head five years ago by a falling transom inside a car. The testimony of two reputable physicians, one an ex-president of the State Medical Society, who had examined the child recently, was that the child was in excellent health, bright, intelligent for his years, and they were unable to find anything of pathologic character warranting the maintaining of the action. The osteopath testified that as a "result of the blow and the shock induced thereby a thickening of the brain and a resulting dislocation of several vertebræ had induced *'petit mal'* with which the child is now affected, though not in a manifest form." The jury returned a verdict for $2,000 damages for the plaintiff.

PENNSYLVANIA

Personal.—Dr. B. Franklin Royer, Harrisburg, has been appointed chief medical inspector of the state, vice Dr. Arthur B. Moulton, resigned. Dr. Royer has been associate chief medical inspector for the past eighteen months.

State Railroad Commission's Report.—The quarterly report of the State Railroad Commission for the three months ending June 30, shows that 271 persons were killed and 2,287 were injured on the steam railroads of Pennsylvania. There were during the same period 63 fatalities on the street railroads and 1,119 persons were injured. Of the fatalities on the steam roads, 89 were to employees, 11 to passengers, 143 to trespassers and 28 to others. The trolley lines killed 6 employees, 5 passengers, 7 trespassers and 45 others.

City Nurses Reduce Infant Death Rate.—Successful results have followed the city's campaign against infant mortality. Comparing the results in the second, third, fourth and fifth wards, where special efforts are being made to save the lives of babies, while the mortality last week was 7 per cent. higher than in the corresponding week of last year, as compared with the total increase of 50 per cent. for all the wards of the city, the work of the special nurses would mean a saving of 713 lives if it could be extended to all the wards of the city. In the second and third wards the mortality was 9 per cent. and 16 per cent. respectively, compared with 60 per cent. for the whole city; in the fourth and fifth wards it was 14 and 22 per cent., respectively.

Philadelphia

New Amphitheater for Woman's College.—Work will shortly be started on the new amphitheater for the Woman's Medical College on North College Avenue. The building will be used for clinical work and will consist of a two-story brick structure, 35 by 40 feet. The estimated cost is $17,500.

New Laboratory for the University.—Architects have completed plans for a new zoologic laboratory for the University of Pennsylvania. It is to be a three-story, fireproof building, occupying a lot 216 by 156 feet on Hamilton Walk, adjacent to the old biologic laboratory and its cost will be about $300,000.

Hospital Opens a Milk Station.—On July 28 a modified milk station was opened at the Mt. Sinai Hospital, to be maintained throughout the year as part of the general plan inaugurated for the better care of babies in the tenement districts. The station will be open daily from 9 to 11 a. m. and from 5 to 6 p. m. Special nurses will be on hand to advise mothers.

Another Baby Station Opened.—Another baby-saving station was opened by the city August 3 on the Race Street recreation pier, where a day nursery and hospital will be conducted by the department of health and charities. One end of the pier is equipped as a hospital for babies and a rest room for mothers, and the other is fitted up with a sand pile and playthings for older children.

Personal.—The following physicians have sailed for Europe: Dr. D. Roman, on August 3; Drs. Walter C. Stillwell, Arthur Jackson Brewe and J. I. McGuigan on August 6.——Dr. Willis F. Manges has been named as chief of the Roentgen ray laboratory of the Philadelphia General Hospital to succeed the late Dr. Mihran K. Kassabian whose death was caused by *x*-ray burns. Dr. Manges has had charge of the *x*-ray laboratory at the Jefferson Medical College and will continue in that position.——Dr. Edward A. Leonard has been promoted to assistant physician at the Philadelphia General Hospital, made vacant by the resignation of Dr. Samuel Stern.——Dr. Joseph F. Dunn has also been appointed assistant physician at the Philadelphia General Hospital.——Dr. Joseph Price, who has been ill for six months from septic poisoning, has recovered and is again at work.

University Adds Course in Tropical Medicine.—Announcement was made August 5 that the University of Pennsylvania would add a series of courses in tropical medicine as an elective to undergraduates and as a special course to postgraduates. These courses will be under the charge of Dr. Allen J. Smith, dean of the medical department, and they will include instruction in medical climatology and geography; hygiene of ships and of the tropics; protozoology, anthropodology, helminthology and general medical zoology; diseases of the eye, skin and surgical diseases common to the tropics; pathology of tropical diseases and systematic and clinical tropical medicine. The full course will continue fifteen weeks and will include ten units of study. The teaching force of the department will include Drs. A. C. Abbott, William Pepper, George E. de Schweinitz, William B. Hartzell and M. H. Jacobs.

Druggists' Association Acts Against Soothing Syrups.—At a meeting held in the College of Pharmacy on August 5, the

Retail Druggists' Association passed resolutions condemning so-called soothing syrups containing morphin and cocain. Eleven hundred druggists, members of the association, will now refuse to sell syrups without a physician's order and are determined that any infringement of this rule shall be punishable by loss of membership in the society. Under the auspices of the state pharmaceutical board, an active campaign will be begun against the sale and manufacture of such pernicious drugs. The state legislature will be appealed to at its next session to eliminate from the statute books the present law which permits the sale of these drugs, providing that their contents are made clear on the labels of the bottles, and to insert in its place a clause which shall prohibit entirely the manufacture of the concoctions.

Campaign Against Tuberculous Meat.—Dr. A. H. Schreiber, chief meat and cattle inspector of the Health Department, announced on July 25 that warrants would be issued this week for the arrest of persons charged with selling tuberculous meats. Of the dealers selling meats without a license, fourteen have been arrested and were arraigned before Magistrate Beaton, July 25. Each was fined $2.50 and costs and ordered to secure a license at once. Six slaughter houses in West Philadelphia have been closed by the Board of Health and fifty additional warrants issued for meat dealers because of the insanitary conditions which prevail and because they failed to meet the requirements of the law in slaughtering cattle, in the disposal of offal and in keeping the premises in clean condition. During one week since the inauguration of the campaign 1,500 pounds of beef and mutton were destroyed because it was unfit for food. Most of this was found on the counters of small dealers and was confiscated by the inspectors.

Women to Aid Phipps Institute Work.—Alexander M. Wilson, sociological director of Phipps Institute, announced August 3 the appointment of three women assistants who will work in the social service of the dispensaries. They are Miss Janice S. Read, of Worcester, Mass., who for three years was head resident in the Jewish Sisterhood Neighborhood House, Newark, N. J.; Miss Lillian G. Elbridge, a graduate of Vassar College and formerly of the Girls House of Refuge, Philadelphia, and Miss Edith Dudley, Poughkeepsie, N. Y., graduate of Wellesley and also a worker in the House of Refuge. Their work at the institute is to attempt to better the conditions under which the dispensary patients live. They will see that children in families where there is tuberculosis are protected against infection, and if already infected, that they are placed under proper treatment. The help of the health department, of landlords, employers, churches and charities will be enlisted to obtain good surroundings and sufficient diet for the patients that come under their charge.

RHODE ISLAND

Medicolegal Society Meeting.—The annual meeting of the Medicolegal Society of Rhode Island was held at Field's Point, July 22. Dr. Arthur H. Harrington, Howard, was elected president, and Dr. Carl R. Doten, Providence, secretary-treasurer.

Building for State Medical Society.—The Rhode Island Medical Society, at its last annual meeting, appropriated $7,500 for a building for permanent headquarters of the society, and has purchased land at the corner of Hayes and Francis Streets, Providence, for the purpose.

State Health Officers Meet.—The health officers of the cities and towns of the state met at the State Hospital, Providence, July 28. Quarantine and water supplies were the chief topics of discussion. Dr. John H. Bennett of the State Board of Health, spoke of the subject of fumigation, stating that from his experience, he believed the best kind of fumigation was that which brought into use fresh air, sunlight, hot water and soap and plenty of elbow grease. A committee was appointed consisting of one health officer from each county to draw up an acceptable and effective quarantine bill for presentation to the next legislature.

Work of the State Sanatorium.—At the opening of the tuberculosis exhibit under the auspices of the Newport Association for the Relief and Prevention of Tuberculosis, Dr. Harry Lee Barnes, superintendent of the State Sanatorium, stated that the state sanatorium had saved lives with sufficient frequency to amply justify its establishment financially, even though the humanitarian consideration be ignored, and that investigation had shown that the annual earnings of patients discharged from the institution during or before 1908, and who are free from active symptoms of tuberculosis, had amounted to over $100,000.

WASHINGTON

State Medical Society.—The Washington State Medical Association met at Bellingham July 26, 27 and 28. One of the sessions of the convention was held on a steamer, cruising among the San Juan Islands. Hon. Horace E. Hadley, justice of the supreme court of Washington, addressed the convention on "The Joint Responsibilities of the Lawyer and the Doctor." The following officers were elected: President, Dr. Wilson R. Johnson, Spokane; president-elect, Dr. Leon L. Love, Tacoma; vice-presidents, Drs. Grant Calhoun, Seattle, and J. Earl Elsie, Pullman; secretary, Dr. Curtis H. Thompson, Seattle; treasurer, Dr. Park W. Willis, Seattle, and delegates to the American Medical Association, Drs. James R. Yocom, Tacoma, and George W. Libby, Spokane. The next meeting will be held in Spokane.

WISCONSIN

Personal.—Dr. Lewis F. Bennett, Beloit, has been elected president and Dr. John M. Beffel, Milwaukee, secretary of the State Board of Medical Examiners.——Dr. Frank E. Darling, registrar of vital statistics of the health department of Milwaukee, has resigned.

Nurses Call for Tuberculosis Instruction.—The Wisconsin State Association of Graduate Nurses, at a recent meeting, adopted resolutions calling on training schools to furnish adequate instruction in caring for tuberculosis patients in homes and in institutions. The action is approved by the Wisconsin Antituberculosis Association.

Milwaukee Health Conditions.—During the week ended July 23, Health Commissioner William C. Rucker, reported that there were 222 cases of typhoid fever, a decrease of 19 since July 16. Forty-nine new cases of typhoid were reported, five deaths were assigned to that disease and 63 recoveries. The work of gathering samples of water from the lake for the state hygienic laboratory has continued for the past six weeks. Water has been taken at intervals of from one mile to a distance of seven miles in the lake. Commissioner Rucker has been criticised for not making public the reports of the examination of water but the commissioner claims the blame is due to the fact that the reports are in the hands of the printer. The investigation conducted by George C. Whipple, an expert from the New York Sewerage Commission, with the assistance of the city engineering department has shown that there is no leak in the intake pipes near the shore. The reports of Commissioner Rucker and the reports of the analysis by the state hygienic laboratory are awaited by the public with much interest.——The recent test of ice-cream shows that manufacturers are complying with the law regarding the standard for ice-cream.——Health Commissioner Rucker has recommended that the department of Dr. George P. Barth, school physician, should be enlarged by providing visiting nurses to go to the homes and teach hygiene to the parents of the pupils.——The Seventh Street Isolation Hospital which has previously been condemned as unfit for hospital purposes, will be abandoned and the building in Kern Park will be used temporarily for isolating diphtheria, scarlet fever and measles.

TEXAS

New Wing at Insane Asylum.—A new wing at the Southwestern Insane Asylum at San Antonio was opened recently and 100 additional white patients have been admitted. The completion of the new wing makes room for 300 more patients.

Salaries of Health Officers.—The state board of health advocates better salaries and longer terms for the city health officers in the various cities of the state. The board believes that this should be conducive of more efficient work in health and sanitary matters.

GENERAL NEWS

Infant Mortality Association Meeting.—The first annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Baltimore Nov. 9 to 11. The sessions will embrace municipal, state and federal

prevention. Dr. William H. Welch will preside. The following are chairmen of committees: Medical prevention, Dr. L. Emmett Holt; educational prevention, Dr. Helen C. Putnam; philanthropic prevention, Dr. Hastings N. Hart. There will be a large exhibit, embracing milk, work, clothing, diet, hot-weather care and recognition of early conditions of disease. Membership is open to all who are interested in the baby. Miss Gertrude B. Knipp, medical and chirurgical faculty building, Baltimore, is executive secretary.

Cost of White Plague War.—According to the report issued by the National Association for the Study and Prevention of Tuberculosis the average cost of caring for tuberculous patients in thirty semi-charitable sanatoriums scattered throughout the United States is $1.67 per day. The expense of maintaining the institutions in different parts of the country varies from 94 cents per capita to $2.56, being more than twice as high in the west and southwest as in the east. The aggregate expenditure was $1,364,000 and the receipts $1,548,000, 70 per cent. of which came from public appropriations and private benefactions and the remainder from patients. It is estimated that there are 300,000 indigent consumptives in the United States who should be cared for by the state, which at the rate named above would cost $50,000,000, though the economic loss from the incapacity of these afflicted persons is yearly $200,000,000.

FOREIGN

Seven Physicians in Hungarian Parliament.—Four new medical members were recently elected, making a total of seven physicians at present in the Hungarian parliament.

Italian Malaria Journal.—The Italian Antimalarial League has founded a journal, *Malaria e Malattie Affini*, to be devoted to work and news bearing on malaria. The address of the new journal is via Farini 62, Rome.

Hydrophobia Statistics in Argentina.—According to the *Semana Medica* of June 23, during the twenty-four years since the Pasteur Institute at Buenos Aires was opened, more than 10,000 persons have taken a course of treatment, 73 have died, a total mortality of 0.67 per cent.

Laboratory for Research on the Brain.—A Moscow medical society, whose aim is to promote the experimental sciences, has turned over to Professor Pawlow an endowment of several thousand dollars to equip a laboratory for special research on the brain.

Pensions for Widows and Orphans of Basel Professors.—On the occasion of the four-hundred and fiftieth anniversary of the founding of the University of Basel, Switzerland, an endowment of $70,000 was collected by the academic society for pensions for the widows and orphans of instructors at the university.

The Recklinghausen Endowment.—Professor von Recklinghausen retired in 1906 from the chair of anatomy at the University of Strasburg, after 35 years' incumbency, as mentioned in these columns at the time. His former pupils have been collecting subscriptions for an endowment to bear his name. The fund has now reached the sum of nearly $4,000 (14,500 marks), and was recently presented to him to apply as he sees fit.

Honors to a Belgium Practitioner.—The fiftieth professional anniversary of Dr. Cartier was recently celebrated at Herstal near Liége, the entire population joining in the demonstration. The *Gazette méd. Belge* says that the town was gaily decorated, bands played, the chimes were rung and crowds thronged the city hall all day long, all in honor of Dr. Cartier's fête. The local authorities, industries, charities, lodges and the medical profession each paid tribute to his half-century of devoted service.

Memorial to Spanish Medical Officers.—A large memorial tablet, commemorative of the Spanish military physicians who lost their lives in the recent wars, was unveiled June 25 in the presence of a large gathering including the royal family and officials. The memorial is in the main hall of the military hospital and the *Siglo Medico* of June 25 gives the list of names of the physicians as inscribed on the tablet, with their rank and place and date of decease, from 1834 to 1895. After this date are the names of Dr. Molto, Noveleta, 1897, and Dr. Carraceja, 1898, corresponding to the date of our war with Spain, and Don Pascual, Peñon de la Gomera, 1909, a total of 24 names in all.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 30, 1910.

Annual Meeting of the British Medical Association

The seventy-eighth annual meeting of the British Medical Association was held in London July 22 to 29. It is now 15 years since the association met in the metropolis, which offers unusual advantages for the purpose, among which is an unusually large attendance, on this occasion amounting to 3,000. The function was in every way—scientific and social—most successful. Among the foreign guests were Prof. Kocher (Berne), Dr. Lucas Championnière and Dr. Wickham (Paris) and the following Americans: Dr. J. H. Bryan, Dr. Bulkley, Prof. Crile, Prof. Tait Mackenzie and Dr. Edsall. The president, Mr. Henry T. Butlin, who is also president of the Royal College of Surgeons, delivered a very interesting address on "The Evolution of the Association and Its Work." The growth of specialism has increased the number of "sections" of the association to 21, which now includes such new ones as "Medical Sociology" and "Radiology and Medical Electricity." Ample accommodation was furnished by the spacious class rooms of the University of London. The sections were well attended and many papers of great interest and importance were read and discussed. In the Section on Surgery, Mr. Arbuthnot Lane advocated the operative treatment of simple fractures. His name has long been identified with this method and his views have been previously published in THE JOURNAL. The discussion revealed considerable difference of opinion. Dr. Lucas Championnière of Paris could not agree with the utility or necessity of the method in all cases. Mr. Gilbert Barling found it difficult to reconcile the divergent views now held as to the treatment of fractures. Some claimed that by non-operative methods it was possible to obtain a high percentage of perfect results; others that after an ordinary fracture treated by splints there was a depreciation ranging from 30 to 100 per cent. He suggested that a committee be formed to investigate the matter. A resolution in favor of this was passed by the section.

Dr. Louis Wickham of Paris gave a demonstration, illustrated by lantern slides, on the treatment of cancer by radium. He showed the remarkable effects of radium in causing the regression and even disappearance of cancerous growths but deprecated the use of the word "cure" which should rarely be used. In the great majority of cases radium should be associated with surgery. If a grave cancer was present the radium therapeutist should first consult the surgeon so that the patient be not deprived of the prompt help of surgery. On the other hand, if the surgeon has a case in which it is difficult to operate he should use radium to prepare the ground and diminish the virulence of the growth. He should also prepare the ground for the action of radium, by perforations, incisions, and by partial extirpations diminish the thickness of the tissues which the rays have to traverse.

In the Section on Dermatology Sir Jonathan Hutchinson read a paper on "Paleogenesis as Illustrated in Certain Affections of the Skin." This is an entirely new subject which this wonderful octogenarian has attacked with an energy and originality which show no sign of age. Paleogenesis is a name which he has introduced to signify inheritance from remote ancestors in the evolution of man from the lowest types. The term atavism has been used to signify inheritance from near progenitors. Paleogenesis is therefore atavism *in excelsis*.

For the ordinary visitor the most important and interesting feature of the meeting was the scientific exhibit which surpassed all previous exhibits in elaborateness. It contained over 3,000 specimens and was organized on a new plan, being divided into 19 sections, each under the care of an expert honorary curator, who selected a few subjects for illustration and collected from all available sources the most useful material. Thus the exhibit contained many series of exhibits rather than the usual miscellaneous items. Special attention was paid to methods, and as far as possible an ocular demonstration was offered of recent advances and of methods employed both in practice and in the laboratory for the diagnosis and treatment of disease. A novel feature was a section devoted to anesthetics in which many historical as well as modern anesthetic apparatus were collected. The number of microscopic specimens shown was unusually large, amounting to over 400. The section of protozoology was most interest-

ing; many recently discovered parasitic protozoa were shown in the blood of man and animals. In the Section on Cancer Research the ethnologic distribution of the disease and cancer in animals, spontaneous and transplanted, were illustrated. A very interesting series of portraits with accompanying microscopic sections showing the condition in cases of cancer before and after the use of radium, was exhibited by Dr. Dominici of Paris. Under the influence of the radium the growths disappeared and on microscopic examination the epithelial cells of the cancer were shown in process of regression and replacement by connective tissue.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 28, 1910.

Pyelotomy for Removal of Renal Calculi

On July 26, Dr. Bazy, surgeon of the hospitals of Paris, read an interesting paper before the Académie de Médecine, showing that the removal of most renal calculi may be effected by pyelotomy, that is, the incision of the kidney pelvis alone without injuring the parenchyma of the kidney, without disturbing the functioning of the organ, whatever it may be, and without altering its functional value. Bazy believes that it is unnecessary in the great majority of cases to make patients undergo exploratory operations, which may be badly sustained or dangerous, in order to ascertain the functional value of the kidney. Pyelotomy may be performed on any person capable of undergoing an operation of average duration and of minimum gravity. It is entirely suitable in cases in which the kidney containing the stones is the only functioning one and therefore must be conserved. These conditions were present in two of Bazy's patients, women aged 48 and 58, respectively, and worn out by suffering. Pyelotomy may be employed in cases in which the kidney pelvis is infected. The reunion of the pelvis by first intention does not appear to be hindered by this complication. It may be ascertained in advance by radiography whether one should employ pyelotomy or nephrotomy.

Enlargement of Scope of Scientific Information Bureau

For about seven years there has been at the Sorbonne a bureau of scientific information for foreign students. Up to the present this service has been maintained by the municipality of Paris. To improve this service, an association has been recently formed to furnish to all, whether French or foreign, but especially the latter, by correspondence or orally, all useful information in regard to the means of study in France. It will organize tours of study for foreigners in France, will aid in the formation and development of special courses in the universities for the use of foreign students, and will organize outside of France, an active propaganda in favor of French instruction, through brochures, prospectuses, newspaper articles, diplomatic agents and special correspondents, etc. It will also encourage relations between professors and students in French and foreign universities. While up to the present, the bureau of information has been almost exclusively Parisian, the field of the new organization, which is called Office national des Universités et grandes Ecoles françaises, will cover the universities in the departments. The government has voted $2,400 (12,000 francs) in aid of this institution. [Address: Bureau des Renseignements Scientifiques, Sorbonne, Paris, France.]

Medals for Physicians Who Do Vaccination

It is customary each year for the Académie de Médecine to award gold, silver-gilt, silver and bronze medals to physicians who do vaccination. These medals are transmitted to the minister of the interior and then sent to the prefects, who send them to the physicians thus honored. This year several medals did not arrive at their destination. Inquiry brought out the fact that certain prefects had confiscated the medals because the physicians to whom they had been awarded were not in agreement with the government. Indignant at this intrusion of politics into a matter with which it had no concern, the council of the Académie de Médecine brought the matter before the premier, M. Briand, who has energetically censured the culprits and has promised that the physicians who had been awarded medals shall very shortly receive them.

The Illegal Practice of Medicine by a Physician

According to French law, the physician who lends his countenance to a person practicing medicine without a diploma or who, without directing the treatment of the patients, uses his medical degree to lend sanction to the acts of such a person, becomes guilty of illegal practice of medicine. Recently the courts have decided that a physician who directs the treatment himself but who prescribes for many of the patients on the basis solely of replies to questions published broadcast, in the name of some institute or other, is thereby aiding the illegal practice of medicine.

The Period of Military Instruction to Students

Because of the inconvenience caused to students by the obligation of responding to the call to military instruction at the time of an examination, of a *concours* or of matriculation at a college, the minister of war has informed the generals commanding the army corps that it would be advisable for them to receive as favorably as possible the requests for delay made by students when the latter show that it would be impossible for them to absent themselves from their studies without serious detriment.

Election of Two Associates to the Academy of Medicine

The Académie de Médecine has elected as national associates Dr. P. Spillmann, professor of clinical medicine at the Nancy College of Medicine and Dr. Testut, professor of anatomy at the Lyons College of Medicine.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 20, 1910.

The Fossil Races of Men in Europe in the Glacial Period

Professor Klaatsch, the well-known Breslau anthropologist, delivered recently a very interesting address in the medical section of the Schlesische Gesellschaft für Vaterländische Kultur on the oldest races of men in Europe. By the recent discoveries the views regarding the relationship of man with the apes have been much modified. In many points the apes go beyond man. The long arms and strong canine teeth are phenomena of adaptation which developed after the path toward human development was closed to the ape. There must have been a common road from which the various paths of development separated. The hand with long thumb is the original form; even the four-footed animals have developed from quadrumanous types. It is also established by the newest discoveries that the variety of races is an ancient phenomenon. Probably a continent between Asia and Africa has sunk and in that way a separation into the African type (gorilla) and the Asiatic type (orangutang) arose. The prehistoric man discovered at Aurignac appears to represent a younger race than the Neandertal man and the man of Le Moustier. A complete skeleton, beautifully preserved with petrified bones, was unearthed at La Chapelle, France. It shows a complete burial with the face directed toward the south, and in addition some remarkable tools; also a shell ornament was found about the neck. The skeleton was that of a slender human being, but with primitive characteristics like those of the Australian race. The *Faustkeile* indicates the oldest period of the glacial drift, at any rate older than the discovery of Le Moustier and Aurignac. The lecturer regards the Neandertal man as of African type and the man of Aurignac as of Asiatic type.

Ehrlich's New Syphilis Remedy, "606" *

Good results with the new remedy have been reported from some hospitals during the last week. Of greater importance is an improvement in technic which Dr. Wechselmann, the director of the dermatologic department of the Virchow hospital in Berlin, has made and will soon publish. Of the two side-effects which have so far been observed after intramuscular injection of the remedy, namely, rise of temperature to 39 C. (102.2 F.) and the pains, the latter are more

* This subject is discussed editorially in this issue and also in the Budapest letter, page 610, and in the Miscellany Department, page 617.

disagreeable, as the fever lasted only a short time, while, after an intragluteal injection, severe neuralgic pains in the region of the sciatic were felt for several hours and required repeated injections of morphin. In some cases pains persisted in the sciatic region, of a light or medium severity, for several days. The technic of Wechselmann is intended to avoid this disagreeable complication. The remedy "606" is dissolved in commercial soda lye by rubbing in a mortar; on addition of glacial acetic acid, drop by drop, a fine yellow precipitate falls which is suspended in some distilled water and the reaction of the liquid is made exactly neutral to litmus paper. The suspension is then slowly injected below the shoulder blade, the skin having been previously disinfected and painted with tincture of iodin. Sometimes a slight pain from the injection occurs for a few minutes and occasionally there is a slight swelling on the second or third day. No complaints of moment have occurred in from 60 to 70 cases and there has been no rise of temperature. The action of the remedy remains undiminished. This technic has the advantage that in case symptoms of arsenical poisoning manifest themselves, the site of the injection may be easily cleaned out.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 25, 1910.

An Acoustic Museum and Its Scientific Use

The royal and imperial Vienna Academy of Sciences (Akademie der Wissenschaften) the most renowned Austrian scientific corporation, has possessed for a few years a unique collection of phonograph records, which contain, besides the voices of remarkable persons, numerous records of ethnographic and scientific value. Some of the latest additions come from the voyage of Dr. Pöch, who has taken great pains to obtain characteristic sayings and songs of the Bushmen. The nature of their guttural language can be examined by means of the records by magnifying the vibrations produced by any small part of the cylinder, and observing the succession of vibrations by means of a reflecting mirror. Thus it could be shown that, for instance, the vowels of the language of the Bushmen differ from those of the Papuans, and that the note of the frog, which very much resembles the "ah" of the human voice, is caused by a succession of definite short acoustic impulses, not like the human "ah." The examination of voices in different pathologic conditions of the throat and larynx has also been undertaken by means of the graphophone, and the results of 1,000 various investigations will be published shortly.

The Ultimate Fate of Hereditary Syphilitics Among the Better Classes

Dr. Hochsinger at a recent meeting of the Gesellschaft der Aerzte in Vienna, discussed the results of a series of investigations, extending over twenty-five years, into the ultimate fate of children whose parents had contracted syphilis before the children's birth. Only the better classes of the population were considered and of these only families in which the doctor had opportunity of constantly observing parents and children for a long period. The results are rather unexpected. Altogether, 139 families with 569 children were observed. The 139 women had 263 syphilitic infants born alive, 253 dead babies and 53 living non-syphilitic children. Of the 263 affected children born alive, 55 died before reaching the age of 4, so that 208 individuals were the subjects of prolonged observation. Only 25 per cent. of all of them remained alive and without any attacks, and only 14 per cent. of the children died within their first year of life. All other patients have shown during their life, symptoms of disease traceable directly to syphilis. Apart from manifestations on the skin and the mucous membranes, especially affections of the nervous system, together with moral insanity, were most frequent. The well-known fact that hereditary syphilis plays a prominent part in the etiology of these conditions is borne out very well. On the other side, it was shown that if hereditary syphilitic persons remain healthy up to the age of puberty, the expectation of a healthy future life is justified. Recurrences of syphilis have a very deleterious influence on the somatic resistance of the children; 79 children out of the 263 died during the observation; of course the majority of the deaths occurred within the first year. The most affected organs were the lungs and the alimentary canal. According to the statistics of hospitals with their badly fed unhealthy applicants 70 per cent. of all syphilitic babies die in their first year. Dr. Hochsinger's observations deal with better families, where every possible care was available for the children. The most frequently attacked organs were in the new-born, the skin, the nose, then the viscera. The first-born child is generally more severely attacked than the second, this more than the third and so on. Also the number of recidives declines with the increasing number of children. Out of 123 first-born children, 93 (or 73 per cent.) had recurrences; out of 55 second-born babies, only 24 (or 45 per cent.) had recurrences, and out of 21 third children only 8 (or 38 per cent.) had recurrences. Where maternal lues was manifest, the children most often had developments of the disease, showing that the maternal manifest affection seriously influences the fate of the children. The characteristic feature of the late hereditary syphilis was always the gumma; infantilism and general maldevelopment were frequent. Chronic headache, migraine, is a very frequent concomitant, and very often a characteristic feature of hereditary syphilis. The absence of Hutchinson's symptom, as well as the fairly favorable results during the observations seem to show that an energetic long-continued antisyphilitic treatment may do much good for the unhappy offspring of a tainted family.

BUDAPEST LETTER

BUDAPEST, July 14, 1910.

Outbreak of Typhoid in Budapest

A serious outbreak of typhoid fever has occurred in Budapest, and although officially the nature of the disease has been kept secret, the actual facts became known very soon. Last week over 500 cases were reported, of which 200 are in public hospitals; the remainder have been left in family care. The epidemic was not due to the condition of the water, as has been proved satisfactorily. The majority of the cases were caused by contamination of the milk imported into the city from certain districts; some were traced to the consumption of contaminated fruit, butter and soft cheese. Articles of food are brought to the market in Budapest in a scandalous condition, the danger of which has been often pointed out. Recently out of 200 samples of food taken from as many retail sellers, not less than 60 were found to be unfit for consumption and therefore the lot had to be seized and destroyed. Typhoid has always been present in the city during summer, but the cases were few, far apart and could easily be controlled. At present the epidemic is undoubtedly local, imported from the suburbs, and could be speedily checked if only the market authorities could exert the necessary control over the importation and sale of milk and fruit. Lately, but too late, draconic measures have been instituted in regard to cleanliness.

Ehrlich's New Remedy for Syphilis *

Perhaps nowhere has Ehrlich's discovery caused greater agitation than in Hungary. The dailies devote whole pages to it, not sparing epithets or adjectives in praise. One of the dailies even sent two doctors to Frankfort, where Dr. Ehrlich is working, in order to study the new methods.

As a result of the publicity thus given to this new method, physicians are besieged by patients, imploring to be cured. But, alas! Dr. Ehrlich has not yet brought his remedy to that stage of perfection which allows of its administration without danger, so that he feels himself obliged to confine its use to hospitals, where the patient is under uninterrupted observation, to the present exclusion of private practitioners. The most important Hungarian hospitals have already sent their representatives (some to Frankfort to Dr. Ehrlich and some to Berlin to Dr. Wechselmann) to study the manner of conducting the treatment in the hospitals there.

As I was one of those who called on Dr. Ehrlich, I am able to relate personal experiences regarding this discovery. When I was admitted to Prof. Ehrlich's laboratory I was surprised to see three men in a little cabinet writing at Ehrlich's dictation. I questioned him as to the reason of this. "You

*This subject is discussed editorially in this issue and also in the Berlin letter, page 609, and in the Miscellany Department, page 617.

see," said he, "that although I feel very much flattered by the attention and confidence displayed in me by my brother physicians, yet I cannot reply to all the demands they make on me. I myself am not a practitioner, but the director of the Königliches Institut für experimentelle Therapie (Royal Institute for Experimental Therapeutics). I am investigating in my laboratory and have placed the experimenting and proving of this remedy into the capable hands of Dr. Wechselmann at the Virchow Hospital in Berlin, where he is studying cases under treatment. However, I wish if possible to answer all letters and telegrams (and they come by the basketful), and that is what you now see me attempting to do. There are some letters here that have had to wait for three or four weeks.

"As to the method of discovery, it has not been like so many other new discoveries, a matter of chance, but I have been working at it for some time past, knowing as I do how many are suffering under the fear and apprehension of this terrible disease, and that if I could succeed in alleviating this I should feel satisfied and consider that I had accomplished a beneficial work. As my friend, Dr. Wechselmann, says, referring to the treatment, one injection arrests the disease to as great an extent as more than a year's treatment by any other method.

"The most important point about this remedy is that one injection utterly destroys all the spirochetes, but is harmless to the animal tissues. In the course of my investigations I have made hundreds of mixtures with which to accomplish this, but only after several years of experiments did I, in company with Dr. Hata, in November last, discover the present medicine 'dimethyldioxiarsenobensoldichlorhydrat' and the cure 'sterilisatio magna,' so called because of its great effect of killing all parasites at once. In March last, being so satisfied with the results of my trials on animals, I decided to apply the medicine to human beings, but having no hospital under my control, I asked my friend, Dr. Wechselmann, to undertake the conduct of the experiments, and he, I am sure, will be very pleased to show you the method and the results if you go to Berlin."

I went to Berlin to the great Virchow Hospital, where Professor Wechselmann has charge of the venereal section. Wechselmann's section was located by the innumerable eyeglassed gentlemen who were standing before the door of a large building. It was not difficult to find out that these doctors were waiting for Wechselmann. It was then 9:40 a. m. Exactly at 10 o'clock Professor Wechselmann came. He is a man about 50, who displays all the external features of a learned man. He was glad to see, he said to me, after my introduction, that the Hungarian doctors are so keen in appreciating the epoch-making importance of Ehrlich's new remedy. "The lay press," he said, "is in great measure responsible for this extraordinary interest. You are the thirteenth Hungarian to come to see our work here." Then he showed us his wards, which are the model of a modern hospital. Large spacious halls of spotless cleanliness, glazed, tiled, cornerless walls, electric ventilation, good light: in short it is the acme of hygiene we see here. He led us into a separate compartment where about 12 patients were located, all treated with Ehrlich's remedy. He showed us one case, which was admitted 6 days previously, with a fresh syphilis, papules, swollen glands and mucous plaques in the throat. All these symptoms had disappeared after one injection of the Ehrlich remedy, which was administered four days before. And this is not an exceptional case, he said, because all patients who were treated with amido-arseno-benzol, were just as favorably influenced by this remedy. It is true that some of the patients complained of great pains, and in some exceptional cases even urticaria-like rashes made their appearance, and even for three or four hours after the injection fever may occur; however the patients do not mind such little inconveniences considering the great advantage they derive from the injection. "As yet," he said, "I have tried the remedy, almost without exception, in fresh cases, so that for the time being I am unable to say anything definite about old neglected cases. However, I heard from a friend of mine, who has charge of over 200 syphilis cases, that he has had good results with tertiary lues cases, too. At the Neppspringe Lunatic Asylum, for patients whose nervous break-down could be traced back to a syphilitic origin, Ehrlich's remedy was applied with the most surprising results." He finished his very interesting lecture and demonstrations with the assertion that he would not give Ehrlich's remedy into the hands of private practitioners until 3,000 cases were reported on, which is probably nearly at hand, because nearly 2,500 phials were already distributed, and Ehrlich does not give his remedy to anybody without an agreement in writing that the physician will send him a report of the results. "Mention me to your science-loving countrymen," he said, in finishing his interesting discourse.

Dissatisfaction with a University Appointment

Considerable dissatisfaction has been manifested in the medical and lay press, as well as by the public, toward the appointment of L. Nekam to the chair of dermatology in the University of Budapest on the recommendation of Count Fichy, minister of public instruction, whose appointment has been sanctioned by Emperor Francis Joseph. The committee of the medical faculty had proposed the names of Drs. Török and Marschalko, to the general board whose duty it was to investigate and report on the applicants. This body entrusted this duty to a theologian, who ignored the proponents of the medical faculty and appointed Dr. Nekam, with the resulting dissatisfaction.

Creation of Five New Universities

At the present time there are only two universities in Hungary, those at Budapest and Kolozsvar. The former is so crowded with students that proper attention cannot be given them. The authorities have been endeavoring for many years to have different cities assist in establishing other universities, but the matter has never taken practical shape. It is the intention of the present legislative body to establish five universities at once in different parts of the country, two of which shall have medical faculties. These will be built in Szeged and Kassa, two flourishing towns in opposite corners of Hungary, lying outside the circles of the two existing universities. It is hoped that this will relieve the crowded condition of the University at Budapest, which has 1,600 medical students, with accommodations for only 1,200. The two new universities having medical departments are expected to be ready by September 1, 1912.

Yaws and Syphilis.—Henry J. Nichols, Medical Corps U. S. Army (*Proc. N. Y. Path. Soc.*, February and March, 1910), states that in 1905 Castellani while examining smears from a case of yaws discovered a spirochete which when afterward stained with Giemsa stain seemed to be identical morphologically with the *Spirocharta pallida*, and this opinion was confirmed by Schaudinn. Castellani named this *Spirocharta pertenuis* or *pallidula*. Castellani inoculated three monkeys, and in one after sixteen days, at the site of inoculation, a yaw-like lesion developed which repeatedly showed *Spirocharta pertenuis*. Although Castellani and Schaudinn found no morphologic difference between the *pertenuis* and the *pallida*, Prowazek believes that there are certain differences between them. The *pertenuis* is slightly thicker and less rigid; the twists are not so regular; there is more of a tendency for the ends to curl up; the forms with longitudinal divisions are more numerous. After careful study and experimentation the evidence against the identity of the disease with syphilis seems to be as follows: 1. Geographical distribution; yaws is confined to certain tropical regions; it exists where there is no syphilis, and has also died out while syphilis remained. 2. Yaws and syphilis may occur in the same person, and there is no immunity from one disease to the other. 3. The lesions in yaws are always the same, not pleomorphic. 4. The lesions of yaws affect principally the epithelial, not the connective tissue. 5. Yaws is principally a disease of children but is neither hereditary nor congenital. 6. The lesions are extragenital and sexual transmission is practically unknown. 7. Constitutional symptoms are not the rule in yaws. 8. The treponemas may differ morphologically.

Marriages

HUGH O. JONES, M.D., Chicago, to Miss Nettie Perry, of Oshkosh, Wis., July 27.

GEORGE GILL, M.D., to Miss Adele Hieber Bassett, both of Elyria, Ohio, July 25.

JOHN BUSHROD SCHWATKA, M.D., to Miss Nina M. Duvall, both of Baltimore, July 30.

DANIEL E. RICARDO, M.D., Chicago, to Miss Justine Theresa Friend, of Cincinnati, August 1.

MORRIS I. BAYLIN, M.D., Baltimore, to Miss Pauline Shulman, of New York City, July 17.

FRANK BLAIR LOVELL, M.D., Gibson City, Ill., to Miss Helen Lewis Brewster, of Wheaton, Ill., June 30.

WALTER ANDREW BLOEDORN, M.D., U. S. Navy, to Miss May H. Howard, of Washington, D. C., July 25.

WILLIAM SCOTT WADSWORTH, M.D., Philadelphia, to Miss Frances Elizabeth Diel, of Syracuse, N. Y., August 4.

Deaths

Charles Jewett, M.D. College of Physicians and Surgeons, New York City, 1871; a member of the American Medical Association; American Academy of Medicine; American Gynecological Society; International Periodical Congress of Obstetricians and Gynecologists, and British Gynecological Society; president of the Medical Society of the State of New York; gynecologist and obstetrician to the Long Island College Hospital; consulting obstetrician to Kings County Hospital; consulting surgeon to St. Christopher's Hospital; consulting gynecologist to Bushwick, Swedish and German Hospitals and Bushwick and Eastern District Dispensaries, Brooklyn; professor of obstetrics and gynecology in Long Island College Hospital; died at his home in Brooklyn, August 5, of apoplexy, aged 71. Dr. Jewett was at the time of his death president of the Medical Society of the State of New York and of the Kings County Medical Society and had been one of the most prominent practitioners of Brooklyn for many years. Although 71 years of age he was in active practice up until a few days ago.

James Albert Hawke, M.D. University of Pennsylvania, Department of Medicine, 1863; a veteran of the Civil War; who entered the U. S. Navy June 24, 1867, as assistant surgeon; was promoted to the grade of passed assistant surgeon on February 26, 1873; was promoted to surgeon, May 1, 1879; to medical inspector in 1895, and to medical director Sept. 24, 1899, after fourteen years' sea service and eighteen years and two months' land service, and was placed on the retired list with rank of rear admiral, on reaching the age limit of 62 years, on January 31, 1903; but was retained on active duty until April 1, 1903; senior medical officer of the navy yard, New York, during the Spanish-American War; died at the United States Naval Medical School Hospital, Washington, D. C., July 25, aged 69.

Ira Brown, M.D. University of Michigan, Department of Medicine and Surgery, 1858; Vanderbilt University, Medical Department, Nashville, 1876; a member of the Illinois State Medical Society; a veteran of the Civil War; a member of the board of pension examining surgeons at Watseka; died at his home in Milford, Ill., July 24, from heart disease, aged 78.

Luther A. Grizzard, M.D. Medical Department of the University of Nashville, Tenn., 1872; Medical Department of the Tulane University of Louisiana, New Orleans, 1876; a member of the American Medical Association; for a number of years surgeon for the Texas and Pacific Railway Company at Abilene, Texas; died in a sanitarium in Fort Worth, July 27, aged 60.

James Young Crawford, M.D. University of Tennessee, Medical Department, Nashville, 1879; a member of the Tennessee State Medical Association; a Confederate veteran; president of the faculty and professor of clinical dentistry in the University of Tennessee Dental Department; died at his home in Nashville, April 5, from angina pectoris, aged 62.

William Hudson Hopwood, Jr., M.D. Jefferson Medical College, Philadelphia, 1906; a member of the American Medical Association; formerly physician for the Pittsburg Coal Company at Grindstone, Pa.; died at the home of his mother in Morgantown, W. Va., July 25, from tuberculosis, aged 28.

Julius F. Menestrina, M.D. Washington University, Medical Department, St. Louis, 1890; a member of the American Medical Association; a veteran of the Spanish-American War; formerly of Iron Mountain, Mich.; died at his home in St. Louis, Mo., July 28, from paralysis, aged 43.

Perry W. Welker, M.D. Eclectic Medical Institute, Cincinnati, 1875; health physician of Alliance, Ohio, for more than seventeen years; died suddenly in his stateroom on the steamer City of Mackinac while on his way to Petoskey, Mich., July 27, from heart disease, aged 58.

David Flavel Woods, M.D. University of Pennsylvania, Department of Medicine, 1864; formerly a member of the American Medical Association; a member of the staff of the Presbyterian Hospital, Philadelphia; died at his home in that city, July 28, from angina pectoris, aged 72.

George W. Chisholm, M.D. Detroit (Mich.) College of Medicine, 1904; a member of the Michigan State Medical Society; a prominent practitioner of Pontiac; died at Harper Hospital, Detroit, where he had gone for treatment, July 29, from leukemia, aged 42.

George Murray Stuart, M.D. College of Physicians and Surgeons, Baltimore, 1905; a member of the Medical Society of the State of Pennsylvania; is said to have been shot and killed in his apartments at Pittsburg, Pa., August 1, aged 27.

Charles N. Denison, M.D. Cincinnati College of Medicine and Surgery, 1861; surgeon of the Eighth Illinois Volunteer Infantry during the Civil War; died at his home in Argenta, Ill., July 25, from papilloma of the bladder, aged 74.

William Varner Robertson, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; was found dead in his room at Athens, Ga., July 14, from the effects of an overdose of some narcotic taken accidentally, aged 49.

Delos Walker, M.D. University of Michigan, Department of Medicine and Surgery, 1864; a member of the American Medical Association; died at his home in Oklahoma City, Okla., July 30, from heart disease, aged 78.

Charles R. Strong, M.D. Detroit (Mich.) College of Medicine, 1903; a member of the Michigan State Medical Society; of Detroit; died at the Red Cross Hospital in that city, August 1, following an operation for appendicitis.

Benjamin Dabney, M.D. New Orleans School of Medicine, 1869; a Confederate veteran; formerly of Bonham, Texas; a resident of Dallas for the last two years; died at Fort Worth, July 30, aged 63.

Alexander L. Murphy, M.D. Jenner Medical College, Chicago, 1909; of Chicago; was killed by a Pere Marquette train at Benton Harbor, Mich., July 23, while on his way to Bangor, Mich., aged 36.

Albert E. Shimmel, M.D. University of Michigan, Department of Medicine and Surgery, 1880; formerly of Berlin, Mich.; died at his home in Grand Rapids, Mich., July 30, aged 54.

Virgil W. Blanchard, M.D. University of Vermont, College of Medicine, Burlington, 1859; of New York City; died at his summer home in Middlebury, Vt., July 30, aged 79.

Irvin Baird Brittingham, M.D. University of Louisville (Ky.) Medical Department, 1846; died at the home of his son in Madison, Wis., July 23, from senile debility, aged 85.

Abraham Nestor Fretz, M.D. University of Pennsylvania, Department of Medicine, 1863; a veteran of the Civil War; died at his home in Fleetwood, Pa., July 28, aged 70.

Frederic W. Lilienthal, M.D. University of Berlin, Germany, 1858; of New York City; died at his country estate in the Catskills, July 28, from heart disease, aged 77.

Richard Henry Stone, M.D. College of Physicians and Surgeons, New York City, 1866; died suddenly at Brooklyn, N. Y., July 27, from cerebral hemorrhage, aged 74.

Horace Stanwood Everett, M.D. Harvard Medical School, Boston, 1870; a veteran of the Civil War; died suddenly at his home in Boston, July 26, aged 69.

Frederick Kidder, M.D. College of Physicians and Surgeons, New York City, 1868; died at his home in Affton, Mo., July 26, from cancer of the liver, aged 66.

Benjamin Franklin Emrick, M.D. College of Physicians and Surgeons, Baltimore, 1881; died at his home in Carlisle, Pa., July 26, from heart disease, aged 50.

George Baillie Simpson, M.D. Bellevue Hospital Medical College, New York City, 1887; died at Sheridan, Wyo., July 4, from heart disease, aged 50.

Leander S. Porter, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1880; of Port Clinton, Ohio; died at Dayton, July 26, aged 80.

J. Warren Royer, M.D. University of Pennsylvania, Department of Medicine, 1845; died at his home in Trappe, Pa., July 25, aged 90.

James I. Wright, M.D. Jefferson Medical College, Philadelphia, 1852; died at his home in Philadelphia, July 27, aged 78.

Ellis Holmes Cornish, M.D. Harvard Medical School, Boston, 1867; died at his home in Carver, Mass., July 25, aged 69.

Correspondence

Neurologic Hospitals and Neurologic and Psychiatric Wards in General Hospitals

To the Editor: The timely and instructive article, "The Dependence of Neurology on Internal Medicine: Plea for the Establishment of Neurologic Hospitals and of Neurologic Wards in General Hospitals," by Drs. Joseph Collins and Pearce Bailey of New York (THE JOURNAL, July 30, 1910, p. 393), seems worthy of more extended comment than would be feasible in the brief period allotted to discussion at the Section meeting. The contention of the writers that this important branch of medicine has received scant recognition in the past from the philanthropic founders of medical laboratories and institutions may be true, in a general sense. The statement, however, that "in all America there is scarcely a general hospital with neurologic wards worthy of the name, with the exception of a few hospitals and inaccessible city almshouses in which cripples and dotards are crowded together under the care of untrained house staffs without laboratory facilities," seems a little broad. I do not presume to question its approximate accuracy as regards the country at large. From a local (Cincinnati) standpoint, however, it seems only just that we should appreciate more fully the actual advantages that we already possess for caring for neurologic and psychiatric ills as well as for teaching the subjects to the members of our medical classes in the University of Cincinnati. It is worthy of note that, owing to the advanced stand taken by the governing bodies of our Cincinnati Municipal Hospital, for some sixteen years past, a distinct and separate department of neurologic medicine has been in operation, both in the wards and in the clinical amphitheater, where the teaching is open to all medical students in the city at a merely nominal fee. This department comprises some forty beds on an average, bedside teaching to small classes of senior students being also a regular feature. Separate wards are allotted to neurologic patients, the female occupying a portion of a general medical ward. Incidentally, detached rooms have been available for a limited number requiring them; also a closed ward for more disturbed cases. These wards are served by two regular staff members, whose official rank and authority are on a par with those of any other of the staff. These chiefs of staff in the neurologic service alternate with each other in terms of four months each, and the courtesy of allowing either member to retain charge of any important case or cases, after his regular term expires, has always obtained. There have recently been added to the staff two members, with the rank of junior neurologists, whose duty it is to serve in place of or in addition to, the chief of service whenever requested. These junior staff officers also take an important part in the bedside teaching given in the wards regularly to the senior students. A separate intern is allotted to the neurologic service. More important still, this clinical organization is complemented in a most efficient manner by a special laboratory of neuropathology presided over by two salaried members of the university faculty. It may be seen from the above that the strictures of the article referred to, on the prevailing shortcomings for the teaching of neurologic medicine in America, do not apply to the situation in Cincinnati.

A still more important forward step in clinical organization and teaching facilities has just been taken with reference to the department of neurology and psychiatry. Owing to the wisdom and foresight of the efficient and self-sacrificing members of the commission for the construction of our new municipal hospital (750 beds) now in course of erection, special provision is made for a separate, isolated and modern neurologic building, to contain also departments for acute psychopathic cases, male and female. Its capacity is to be fifty patients, with provision for expansion as required. This will enable us to avoid the undesirable feature of having neurologic and psychopathic cases, distributed over various parts of a general hospital.

F. W. LANGDON, Cincinnati.

Pharmaceutical Manufacturers and the Great American Fraud

To the Editor: In commenting in your issue of July 30, on Dr. Patek's letter concerning "Pharmaceutical Manufacturers and the Great American Fraud" you say that "the whole history of human progress shows that practically everything we now pronounce necessary to our comfort and material happiness has been brought into being for selfish reasons—that of bringing the inventor or discoverer riches or honor." The sentence might, I think, well be rounded off by adding "or the pleasure of following a congenial vocation." (Recall Bacon's "Happy men whose natures sort with their vocations"). The suggested addition would perhaps justify the toning down of the word "selfish" to "self-regarding."

A very brilliant author of our day somewhere says that all labor done for hire, which would not be done had the laborer an otherwise assured means of livelihood, is prostituted labor; and his epigrammatic phrase seems to reflect the views of authors like John Ruskin and William Morris. True or not, I cannot help thinking that true leaders in pharmacy as in other scientific lines must, after all, have some real love for their vocations, and that this has been a more potent factor in invention and discovery than the desire of "riches or honor."

This love for a vocation is probably intensified by the desire to render service (an altruistic, not selfish or even self-regarding motive); and the essence of our grievance against these great pharmaceutical houses lies in the tendency of their narrow commercial self-seeking to degrade the skilled employee, whose pride and happiness should be in fruitful work and research, to the level of the hireling.

W. R. TYMMS, M.D., Orting, Wash.

Extreme Sensitization From Prophylactic Dose of Diphtheria Antitoxin

To the Editor: Four years ago I administered to a young man 750 units of antidiphtheritic serum as an immunizing dose and within a few moments he was in a serious condition, suffering from dyspnea, general urticaria, rapid pulse, vomiting, etc. He recovered within twelve hours and since that time had been unable to be about horses even for a short time. The emanations from the hairy coat give him severe attacks similar in every way to hay fever, which may become bronchitis secondarily. This patient had no previous personal or family history of asthma or hay fever.

How long is this susceptibility liable to continue, and if he should contract diphtheria, is there any serum that may be used?

L. SIMPSON, Rochester, N. Y.

More New Terms

To the Editor: I want to thank Dr. Henry Freeman Walker for his communication in THE JOURNAL, July 2, 1910, page 42, suggesting the word "viroid" as a generic term for the biologic specifics (toxins, bacterial cultures, bacterial products, lymph, serum, etc.) used in active immunization. I have adopted the word; and my own suggestions of "bacterin," "microbin" and "microbion" can now become specific names under the genus "viroid."

I would also call attention to two other terms I am about to introduce, for which there seems to be much need:

pathogen, meaning a material morbific agent of any kind, and *antipathogen*, meaning a pharmakon of any kind which acts against pathogens in general.

S. SOLIS COHEN, Philadelphia.

Correction in Abstract on Bone Lesions

To the Editor: In the abstract of my article on bone lesions in THE JOURNAL, July 30, page 436, the following error was made: "Syphilitic epiphyseal enlargement is bilateral." It should read: "Syphilitic epiphyseal enlargement is unilateral; rachitic epiphyseal enlargement bilateral."

ALEXANDER E. HORWITZ, St. Louis.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FORMULA FOR OLEUM CINEREUM

To the Editor: Kindly furnish me the formula for preparing oleum cinereum. A. E. CONTER, Apalachicola, Fla.

ANSWER.—A number of formulas for this preparation have been given, differing chiefly in the excipient used. The following is given by the British Pharmaceutical Codex:

Mercury	40.00
Wool fat	10.00
Liquid paraffin, sufficient to produce (by weight)	100.00

Melt the wool fat, pour into a warm mortar, and, when it is nearly cold but still liquid, add the mercury and triturate until a homogeneous mixture is obtained; then add the liquid paraffin.

DETERMINATION OF FAT IN MILK

To the Editor:—Please state where I can find the method for determining the fat in milk by means of amyl alcohol and hydrochloric acid F. E. CLOUGH, Lead, S. Dak.

ANSWER.—The method is described in Leffmann and Beam's "Food Analysis," pages 205-207 (P. Blakiston's Son & Co., Philadelphia).

The Public Service

Medical Department, U. S. Army

Changes for the week ended Aug. 6, 1910:

Clayton, Jere B., major, will proceed from Vancouver Barracks, Wash., to Camp of Instruction, American Lake, Wash., for duty.

Reynolds, F. P., major, granted 10 days' leave of absence.

Stallman, George E., dental surgeon, ordered to proceed to the Leon Springs Target and Maneuver Reservation, Tex., for duty during the encampment.

Griswold, W. Church, M. R. C., relieved from duty at Fort Oglethorpe, Ga., and ordered to Philippine Islands, for duty on transport sailing from San Francisco about Nov. 5, 1910.

Brown, Wilmont E., M. R. C., sick leave of absence further extended 3 months.

Williams, Harry B., M. R. C., granted 15 days' leave of absence about Sept. 15, 1910.

Cole, Blase, M. R. C., ordered to proceed from Fort Crook, Neb., to Fort Mackenzie, Wyo., for temporary duty.

Banister, William B., lieut. col., detailed for duty at the Camp of Instruction, Maneuver Reservation, Sparta, Wis.

Ebert, Rudolph G., lieut. col., left Headquarters, Dept. of Columbia, Vancouver Barracks, for duty at Camp of Instruction, American Lake, Wash.

Roberts, William M., major, left Camp of Instruction, Gettysburg, Pa., en route to Saratoga, N. Y., and Pimlico, Md., on detached duty.

Clark, John A., leave of absence granted in S. O. No. 143, June 20, 1910, War Department, is extended 15 days.

Winter, Francis A., major, ordered to proceed to New York City, for consultation with the medical supply officer in that city with reference to the purchaser of medical supplies, etc.

Yemans, Herbert W., M. R. C., ordered to repair to this city at the proper time and report in person Aug. 21, 1910, to the Chief of Staff, for temporary duty.

Morse, Charles F., capt., relieved from duty at Schofield Barracks, H. T., and will proceed to San Francisco, and on arrival report by telegraph to The Adjutant General of the Army, for further orders.

Murray, Alexander, capt., on arrival at Seattle, Wash., in compliance with orders heretofore issued, will proceed to Fort Casey, Wash.

Smith, Herbert M., capt., relieved from duty at Fort Casey, Wash., and will proceed to Philadelphia, Pa., for duty as attending surgeon in that city.

Shephard, John L., leave of absence extended 15 days.

Davis, William T., capt., in addition to his present duties will report in person to Colonel Louis A. LaGarde, Medical Corps, President of the Faculty, Army Medical School, for duty as assistant instructor in ophthalmology and optometry at that school.

Wickline, William A., capt., in addition to his duties with Co. C, Hospital Corps, will report in person not later than Oct. 1, 1910, to Colonel Louis A. LaGarde, President of the Faculty, Army Medical School, for duty as instructor in Hospital Corps and first aid, at that school, relieving Major Charles R. Reynolds, Medical Corps.

Vaughan, Milton, contract surgeon, reported for duty at Fort Logan H. Roots, Ark.

Long, Charles J., dental surgeon, left Fort Adams, R. I., en route to Pine Camp, N. Y.

Pomeroy, William H., contract surgeon, granted 21 days' leave of absence.

Whinnery, J. C., dental surgeon, died at Zamboanga, Mindanao, P. I., July 29, 1910.

Schreiner, E. R., major, left Fort Walla Walla, Wash., for duty at Camp of Instruction, American Lake, Wash.

Truby, Willard F., major, left Fort Worden, Wash., en route to Camp of Instruction, American Lake, Wash.

Van Poole, G. McD., major, and Mount, James R., lieut., report for duty at Camp Emory Upton, Sparta, Wis.

Clayton, George R., M. R. C., reports at Camp Bruce E. McCoy, Maneuver Reservation, Sparta, Wis.

Talbott, E. M., capt., and Haverkampf, C. W., lieut., report at Camp Bruce E. McCoy, Maneuver Reservation, Sparta, Wis.

Barney, Charles N., major, granted 30 days' leave of absence about Sept. 1, 1910.

Whitmore, W. C., contract surgeon, reported for duty at Fort McKinley, Me.

Burkett, John A., lieut., left Fort Riley, Kan., wtih the 6th Field Artillery, on practice march.

Fox, James S., lieut., reported for duty at camp, Leon Springs, Tex.

Medical Corps, U. S. Navy

Changes for the week ended July 30, 1910:

Rhoades, G. C., asst-surgeon, ordered to duty at the Naval Hospital, Norfolk, Va.

Bloedorn, W. A., asst-surgeon, ordered to the Navy Yard, Mare Island, Cal.

Downey, J. O., asst-surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to duty at the Naval Hospital, Naval Home, Philadelphia.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Aug. 3, 1910:

Banks, C. E., surgeon, granted 7 days' leave of absence from Aug. 1, 1910.

Wertenbaker, W. P., surgeon, directed to proceed to Richmond, Va., on special temporary duty.

Fox, Carroll, P. A. surgeon (on leave), directed to report at the Bureau on special temporary duty.

Korn, W. A., P. A. surgeon, directed to proceed to Point Pleasant, N. J., for the purpose of making examination of keepers and surfmen of the Life-Saving Service.

Sweet, Ernest A., P. A. surgeon, granted 4 days' leave of absence from July 21, 1910, under paragraph 191, Service Regulations.

Spratt, R. D., P. A. surgeon, granted 5 days' leave of absence from July 23, 1910, on account of sickness.

Frost, W. H., P. A. surgeon, directed to proceed to Des. Moines, Iowa, on special temporary duty.

Mullan, E. H., P. A. surgeon, granted 2 days' leave of absence from July 30, 1910, under paragraph 191, Service Regulations.

Preble, Paul, asst.-surgeon, granted 1 month's leave of absence from Aug. 8, 1910.

Kearny, Richard, asst.-surgeon, directed to proceed to San Francisco, and report to the medical officer in command for duty and assignment to quarters. Directed to report to the medical officer in command at Chicago, for temporary duty en route to station.

Draper, Warren F., asst.-surgeon, directed to proceed to Angel Island, Cal., and report to the medical officer in command for duty and assignment to quarters.

Gillespie, Julian M., asst.-surgeon, directed to proceed to Honolulu, Hawaii, and report to the Chief Quarantine Officer for duty. In addition to present duties, directed to report to commanding officer, Revenue Cutter *Thetis* from time to time for temporary duty.

Stiles, C. W., professor, detailed to represent the Service at the meeting of the International Zoologic Congress at Gratz, Austria, Aug. 15-20, 1910.

Blanchard, J. F., acting asst.-surgeon, granted 3 days' leave of absence from July 11, 1910.

Cleaves, F. H., acting asst.-surgeon, granted 3 days' leave of absence from July 28, 1910, under paragraph 210, Service Regulations.

Delo, J. M., acting asst.-surgeon, granted 7 days' leave of absence from July 26, 1910, under paragraph 210, Service Regulations. Granted 7 days' leave of absence from July 24, 1910.

Duffy, Francis, acting asst.-surgeon, granted 6 days' leave of absence from Aug. 3, 1910.

Harkin, F. McD., acting asst.-surgeon, granted 14 days' leave of absence from Aug. 1, 1910.

Hamilton, H. J., acting asst.-surgeon, leave of absence for 4 days from July 19, 1910, amended to read 4 days from July 26, 1910.

Onuf, B., acting asst.-surgeon, granted 7 days' leave of absence from July 22, 1910, under paragraph 210, Service Regulations.

Scott, J. F., acting asst.-surgeon, granted 24 days' leave of absence from June 3, 1910.

Stevenson, J. W., acting asst.-surgeon, granted 30 days' leave of absence from Aug. 3, 1910.

State Boards of Registration

Arkansas Eclectic May Report

Dr. G. A. Hinton, secretary of the Arkansas Eclectic Medical Board, reports the written examination held at Little Rock, May 11-12, 1910. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The 5 candidates all passed.

PASSED			
College		Year Grad.	Per Cent.
Eclectic Medical University Kansas City		(1910)	76.8, 78.7, 81.7, 85.3, 88.7

Michigan May Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, May 19-21, 1910. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, and not less than 50 per cent. in any subject. The total number of candidates examined was 35, of whom 33 passed and 2 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Detroit College of Medicine	(1909) 79.6; (1910) 75.2, 77.1, 80.6, 80.7, 80.9, 81.5, 81.8, 82, 82.2, 82.9, 83.8, 84.1, 84.5, 85.4, 85.7, 86.1, 86.4, 86.8, 87, 87, 87.4, 87.7, 88.5, 89.1, 89.9, 91, 90.2, 90.5	
Detroit Homeopathic College	(1910)	76.3, 82.5
University of Michigan, Homeopathic College	(1910)	82.6

FAILED		
Detroit Homeopathic College	(1910)	66.9
Detroit College of Medicine	(1910)	68

Nebraska May Report

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, May 11-12, 1910. The number of subjects examined in was 13; total number of questions asked, 130; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Ensworth Medical College	(1910) 75, 78.8, 81.8, 85.5, 87.3, 88.8	

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Northwestern Univ. Med. School	(1898) Wis.; (1909)	Illinois
Rush Medical College	(1881) Minnesota; (1908)	Wisconsin
College of Phys. and Surg., Chicago	(1903) (1904)	Illinois
University of Louisville	(1907)	W. Virginia
Central Medical College, St. Joseph	(1898)	Missouri
Ensworth Medical College	(1908) Kansas; (1890)	Missouri
Creighton Medical College	(1907)	Iowa
McGill University, Canada	(1908)	Illinois

Delaware June Report

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the written examinations held by the Delaware State Medical Society and the Homeopathic Medical Society respectively at Dover and Wilmington, June 21-23, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75.

At the examination held by the Delaware State Medical Society, the 6 candidates all passed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Jefferson Medical College	(1909) 86.7; (1910)	86.8, 91.5
University of Pennsylvania	(1901) 85.1; (1910)	90.3
University of Virginia	(1910)	91

At the examination held by the Homeopathic Medical Society, the 5 candidates all passed.

PASSED		
College	Year Grad.	Per Cent.
Atlantic Medical College	(1908) 81.5; (1909) 79, 82.6; (1910) 84.2, 87.2	

Minnesota June Report

Dr. W. S. Fullerton, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, June 14-17, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 42, of whom 27 passed and 15 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1910)	80.4
Northwestern University Medical School	(1910)	79.2
University of Minnesota, College of Medicine	(1910) 77.6, 78.5, 78.8, 79, 80.3, 80.5, 80.8, 81.4, 82.3, 82.4, 82.4, 82.5, 83.8, 84.9, 85.7, 86.1, 86.5, 86.6, 87.3, 88.5, 88.7, 90.1	
Hamline University	(1910)	78.4
University of Pennsylvania	(1908)	75.2
Jefferson Medical College	(1910)	88.7

FAILED		
Northwestern University Medical School	(1910)	63.1, 67.9
Chicago College of Medicine and Surgery	(1909)	46.5
Louisville and Hospital Medical College	(1908)	52.5
University of Minnesota	(1909) 72.8; (1910) 75.8,* 76.5,* 76.8*	
Hamline University	(1909)	69.1
Barnes Medical College	(1905)	52.4
Jefferson Medical College	(1909)	65.5, 73.2
Hahnemann Med. Coll. and Hosp., Philadelphia	(1910)	77.5*
Marquette University, Milwaukee	(1910)	72.3, 75.8

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Rush Medical College	(1900)	Illinois
Northwestern University Medical College	(1908) (1909)	Illinois
Hahnemann Med. Coll. and Hospital, Chicago	(1906)	Illinois
Bennett College of Eclectic Med. and Surg.	(1897)	Iowa
Medical College of Indiana	(1902)	Illinois
Drake University	(1909)	Iowa
St. Louis University	(1909)	Illinois
Wisconsin College of Physicians and Surgeons	(1907)	Wisconsin
Marquette University, Milwaukee	(1908)	Wisconsin
University of Toronto, Ontario	(1908)	Deleware
Trinity Medical College, Canada	(1903)	Maine
Royal University of Naples, Italy	(1892)	Illinois

* Fell below 75 per cent. in one or more major branches.

New Hampshire July Report

Mr. H. C. Morrison, regent of the New Hampshire Board of Medical Examiners, reports the written examination held at Concord, July 6-7, 1910. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 30, of whom 24 passed and 6 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Louisville	(1910)	75
Medical School of Maine	(1906)	85
Baltimore Medical College	(1910)	84
Tufts Coll. Med. School	(1907) 76; (1909) 75, 81; (1910)	86
Harvard Med. School	(1888) 79; (1903) 83; (1908) 86; (1910)	82
Dartmouth Med. School	(1908) 80; (1909) 78, 78, (1910)	80, 83, 85
Cornell University	(1910)	86
University of Vermont	(1906) 75, (1909)	77
Laval University, Canada	(1906) 75, (1909)	75, 75
McGill University, Canada	(1909)	84

FAILED		
Baltimore Med. College	(1909)	63
College of Physicians and Surgeons, Boston	(1908)	68
Tufts College Medical School	(1908)	74
Dartmouth Medical School	(1897)	62
Laval University, Canada	(1908) 70, (1909)	69

Utah July Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, July 4-5, 1910. The number of subjects examined in was 23; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, of whom 14 passed and 3 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Rush Medical College	(1910)	86.9
Chicago College of Medicine and Surgery	(1910)	84.7
Northwestern University Medical School	(1910) 78.8, 81.1, 83	
College of Physicians and Surgeons, Chicago	(1908)	79.5
University of Louisville	(1907)	76.9
College of Phys. and Surgs., Baltimore	(1910)	79.4
Univ. of Mich., Dept. of Med. and Surg.	(1909)	80.6
Long Island College Hospital	(1910)	85
Cleveland Homeopathic Medical College	(1903)	76.8
Jefferson Medical College	(1908) 82.2; (1910) 85.1	
Medico-Chirurgical College, Philadelphia	(1910)	81.8

FAILED		
St. Louis College of Physicians and Surgeons	(1910)	69.9
Medical College of Ohio	(1902)	54.2
Medico-Chirurgical College, Philadelphia	(1910)	73.7

Book Notices

NERVOUS STATES, THEIR NATURE AND CAUSES. By Paul Dubois, M.D., Professor of Neuropathology at the University of Berne. Authorized Translation by Edward G. Richards. Cloth. Price, 75 cents. Pp. 101. New York: Funk & Wagnalls Co., 1910.

This is Dubois's fourth work on the same general subject, namely, the class of diseases that have been usually considered as on the border-land between the organic and the functional nervous disorders, and their psychotherapy. The term "neurasthenia," he holds, has grown in general usage to include a far larger class of nervous symptoms than is altogether proper and is misleading to the extent that it implies that the nerves are at fault. It is not a distinct morbid entity by itself, at least in its usual application, but should be included with psychasthenia, hysteria, hypochondria and simple melancholia in the great class of central neuroses or psychopathic conditions; and these form the subject of this little volume. The author does not fall in with the more modern classification of morbid mental states completely, and especially protests against the materialistic conceptions which would associate these symptoms necessarily with other bodily conditions such as impaired nutrition and intoxications, etc. The psychasthenic individual is an hereditarily weakened one who as a rule belongs to a psychopathic family. There is a degenerative state at base, though not of a kind usually seen with gross physical stigmata. When one recognizes this fact of a primary mental weakness one sees the advantages to be obtained by mental training and therapeutics. The neurasthenic patients are those in whom the symptoms of fatigue, exhaustion and incapacity predominate. In the psychasthenics, in the narrower sense, the obsessions, tics and manias are characteristics, while in the hysterical states there is exaggerated autosuggestibility and a weakened mental synthesis. The hypochondriac and the simple melancholiac differ in their preoccupations. The one is concerned about his state of health, and the other regards exterior circumstances with sadness or his person and conduct with self-accusation. In all of these, there is a fundamental inferiority which is the primary trouble, but this not of the first importance as regards treatment or prognosis. The form the psychoneurosis takes depends on the individual mental peculiarities. The therapeutics of these conditions are not comprised in physical exercises, rest and hypernutrition, except so far as these are demanded by the physical condition, but are more largely in the cultivation of moral ideas and self-control. The patient should be taught the harmfulness of indulging in worry and fear, or of cultivating egoism. The task is the same, in short, as the education of normal people and is possible even in the uneducated so far as the combating of these nervous states is concerned.

LIGHT THERAPEUTICS. A Practical Manual of Phototherapy for the Student and the Practitioner. With Special Reference to the Incandescent Electric-Light Bath. By J. H. Kellogg, M.D., Author of Rational Hydrotherapy, the Art of Massage, etc. Cloth. Price, $2.50. Pp. 217, with 67 illustrations. Battle Creek, Mich.: The Good Health Publishing Co., 1910.

The title of this book is misleading, because the work is not on phototherapy at all but on thermotherapy as administered by the electric-light bath or reflected electric light. It practically does not consider phototherapy, in the established sense as applied to the method of use of actinic light and as the method was worked out by Finsen and his followers. This misleading title is merely an oversight, however, for the author says in the first sentences of his preface: "The work does not profess to be an exhaustive treatise on the subject of light therapy. It is intended rather to serve as a practical manual for the clinical use of the electric-light bath in its various forms . . ." He considers at length the physiologic and therapeutic effects of radiant heat from intensely luminous sources of high temperature and this part of the work is ingenious and interesting. He makes out a good case for the electric-light bath as a therapeutic measure. He also gives rational explanations for the therapeutic value of the arc-light as used by him for the application to circumscribed areas of radiant heat. The combined use of these measures with hydrotherapy also comes in for full consideration. All this part of the book—which constitutes more than half of it—dealing with the principles and technic of the method is suggestive and useful. The part directed to the clinical application of the methods in various diseases is less logically worked out and less convincing. Many of the suggestions are a shock to one's pathologic conceptions and lead one to feel that there is danger of the method degenerating into a sanitarium routine. But on the whole the book is a good statement of its subject from the standpoint of an advocate.

THE SURGERY AND PATHOLOGY OF THE THYROID AND PARATHYROID GLANDS. By Albert J. Ochsner, M.D., Professor of Surgery in the Medical Department of the University of Illinois, and Ralph L. Thompson, M.D., Professor of Pathology in the St. Louis University School of Medicine, St. Louis. Cloth. Price, $6. Pp. 391, with 97 illustrations. St. Louis: C. V. Mosby Company, 1910.

Surgeons, pathologists and internists are alike interested in every addition to our knowledge of goiter and its complications. With the exception of Dock's chapter in Osler's book no treatise has heretofore appeared giving adequate descriptions of the parathyroid glandules. Numerous articles in various languages contained all that was really important in the newer surgery and pathology of goiter until this admirable treatise made its appearance. The latest research in the physiology and pathology of those somewhat mysterious bodies, the parathyroid glandules, is carefully collated in this work and together with the pathology of the thyroid gland this is the work of the junior author (Thompson). The senior author (Ochsner) has contributed the chapters on technic and the whole thyroid gland section except the chapters on pathology. The whole subject of the operative treatment of goiter may be said to belong to the last quarter of the nineteenth century and the first decade of the twentieth. The book also represents much original work, mainly that of Professor Wilson of St. Louis. Post-operative tetany, cachexia thyreopriva, cretinism and hyperthyroidism are each elaborately covered in the latter half of the work. Thirty full page plates minutely illustrate the successive stages of thyroidectomy, and if surgical technic could be learned from half-tone pictures the novice could learn to operate by the use of this work.

LIVING ANATOMY AND PATHOLOGY. The Diagnosis of Diseases in Early Life by the Roentgen Method. By Thomas M. Rotch, M.D., Professor of Pediatrics, Harvard University. Cloth. Price, $6. Pp. 225, with 303 illustrations. Philadelphia: J. B. Lippincott Co.

The anatomy of the living child, and the diagnosis of disease in early life as it may be studied by the Roentgen ray, are considered by the author in a systematic treatise containing more than 300 illustrations, and combining in the highest degree the art and science of Roentgenology. The distinction between anatomic and chronologic age—a distinction for which we are indebted to the author—is convincingly presented.

The assistance that may be afforded by the rays, not alone in detecting the presence of foreign bodies or anomalies of the osseous system, but in revealing pathologic changes in the soft tissues, more especially of the thoracic or abdominal organs is graphically portrayed by many illustrations. To select one example, the differentiation between dilatation of the heart and pericarditis with effusion can be made from the Roentgenograph by the consideration of the cardiohepatic angle. The book deserves high commendation and should be possessed by every clinician.

ESSENTIALS OF MEDICAL ELECTRICITY AND RADIOGRAPHY. By Edward R. Morton, M.D., Vice-President, Electro-Therapeutical Section, Royal Society of Medicine. Second Edition. Cloth. Price, $1.75. Pp. 343, with 140 illustrations. Chicago: Chicago Medical Book Co., 1910.

This is an excellent manual. The first 210 pages are given to medical electricity; the last 240 to radiography; radiotherapy is not a part of the volume. The whole work is well done. The apparatus and the physics of both subjects are adequately considered; and the application of the agents to medicine are plainly given, with reasonable conservatism. The book is thoroughly worthy of recommendation.

EMERGENCIES OF GENERAL PRACTICE. By Percy Sargent, M.B., Surgeon to Out-Patients, St. Thomas' Hospital, and Alfred E. Russell, M.D., Physician to Out-Patients, St. Thomas' Hospital. Cloth. Price, $3.50. Pp. 364, with 91 illustrations. New York: Oxford University Press, 1910.

This is a concise and practical manual, clearly written and well arranged, freely illustrated and of great practical value. The authors confine themselves, very properly and rather unusually, to the subject-matter at hand and do not roam far afield into the domains outside of emergencies.

Miscellany

THE EHRLICH REMEDY FOR SYPHILIS*

At a meeting of the Berlin Medical Society, June 22, 1910, W. Wechselmann reported his experiences with Ehrlich and Hata's new remedy for syphilis and discussed the following questions: 1. Is it a specific in syphilis and is it superior to previously known remedies? 2. Does it cure syphilis? 3. Are the dangers of the remedy proportional to the importance of its action.

Wechselmann believes that the most skeptical will admit that the new remedy acts on the symptoms of syphilis in all their infectious forms, with a rapidity and thoroughness which cannot be approached by any other known remedy. He has tested it in eighty cases and states that the action occurred with the certainty of an experiment. Eruptions and ulcerations rapidly heal; in the case of indurated chancres, the surface becomes rapidly clean, but the final healing takes somewhat longer on account of the absorption of the infiltration. It is found that symptoms which do not heal under mercury heal rapidly under the new remedy. The patients begin almost immediately to exhibit an improved general condition and increase rapidly in weight. In one case of visceral syphilis affecting the testicle and also probably the brain, the patient was apparently cured in two weeks with a gain in weight of two pounds. He has observed no relapses, although the period of observation is too short for certainty on this point.

According to his observation the remedy has shown no toxic action. In the case of a patient very much reduced by pernicious anemia, depending on a recent syphilis, an injection of 0.3 gm. (5 grains) temporarily increased the strength, although it was impossible to save the patient's life. No injurious action on the optic nerve has been observed. In infants with hereditary syphilis, which is nearly always fatal, Wechselmann has been able to save two out of five who were treated with this remedy. In the other three the external symptoms disappeared, but death occurred from the affection of the internal organs. Wechselmann prefers the intragluteal injection, its only disadvantage being the severe local pains. (*Berl. klin. Wchnschr.*, July 4, 1910, p. 1261).

Wechselmann has recently improved the technic by dissolving the remedy in sodium hydroxid solution, adding glacial acetic acid until a precipitate occurs, suspending this in distilled water and carefully neutralizing. In this way the pain is greatly mitigated (*Deutsch. med. Wchnschr.*, July 28, p. 1395).

At the meeting of the Berlin Medical Society, at which Wechselmann's paper was read, L. Michaelis reported several cases, confirming the statements of Wechselmann. At the same meeting Alt reported the results in the treatment of nervous cases. After trial on the higher animals he tried the remedy on fifty syphilitics. His results were very favorable. He reports one case of very severe syphilitic icterus which disappeared in about nine days after the injection of 0.4 gm. The remedy was tried in a number of relatively recent cases of tabes and in six cases he observed not only a marked retrogression of the subjective symptoms but also an improvement in the objective symptoms and in the general condition. He reports favorable results in the treatment of epilepsy depending on syphilitic taint. He finds that the excretion of the arsenic takes a somewhat longer time than was formerly supposed. He has seen cases in which arsenic was still being excreted ten to twelve days after the injection.

Neisser writes to the *Deutsche medizinische Wochenschrift* (June 30, 1910, p. 1212), that it is yet too early to give a definite opinion, as an insufficient number of cases have been treated, but he says that it can be affirmed with certainty that the new remedy exerts a remarkable, even surprising action on the spirochete, as well as on the syphilitic products themselves. Spirochetes disappear in very many cases after from twenty-four to forty-eight hours from primary lesions and condylomata in which they were abundantly present before administration. It produces a local reaction in papules and other cutaneous lesions. As to the syphilitic processes, so rapid a retrogression of primary lesions, papular syphilides and especially ulcers can be observed so as to leave no doubt regarding the specific character of the remedy. He reports a prompt relief of symptoms in a case of brain syphilis. He has obtained a reversal of the seroreaction in only about 10 per cent., but thinks that this may be due to the use of too small doses. The cases in which this reversal of reaction occurred were those which came under treatment soon after infection. It does not always prevent the progress of the disease, however, even when applied in cases of primary lesion before the seroreaction is positive. It seems, however, when given to apes, to delay and mitigate the primary lesion. He thinks that the remedy will be especially useful in cases in which mercury treatment has failed or cannot be applied. He advises private practitioners to delay the use of the remedy until present uncertainties regarding dosage and the number and repetition of the injections are settled.

Schreiber and Hoppe (*München. med. Wchnschr.*, July 5, 1910, p. 1430), report their experience in a number of cases. They resort to the intravenous injection and in the treatment of 30 cases found no unpleasant side-effect. The rise of temperature which has been observed in cases in which intramuscular injections were made did not occur in the intravenous injection. They noted no injurious effect on the kidneys nor on the digestive organs. In two cases they noted a scarlatina-like eruption which came on ten days after the injection and lasted three days.

In fifty-two cases they found that the Wassermann reaction became negative in 92.3 per cent. This occurred in the earliest case, four days, and in the latest, seventy days after the injection, but in most cases within fourteen days. They noticed a leukocytosis in most cases. No toxic symptoms were observed by them and they call attention to the fact that the highest dose which they had employed was 0.0096 gm. per kilo, and the toxic dose as shown by animal experimentation is 0.15 gr. per kilo, so that the doses in present use could be considerably increased. For this reason they have increased the dosage from 0.3 to 0.7 gm. They concluded that the remedy has an absolute specific action in syphilis which is manifest after a single injection. They consider it as contraindicated in severe diseases of the circulatory organs, the kidneys and the eyes.

H. Loeb (*München. med. Wchnschr.*, July 26, 1910, p. 1580), reports thirty-five cases with very favorable results. He saw no toxic symptoms and noted in cases in which roseola was present an intensifying eruption (Herxheimer's reaction). One patient relapsed; but he attributed this to an insufficient dose (0.14). The Wassermann reaction was only slightly affected in his cases. But he thinks the time is too short in which to form an opinion.

G. Treupel reports nine cases which confirm the reports of other observers (*Deutsch. med. Wchnschr.*, July 28, 1910, p. 1393).

Fischer and J. Hoppe have investigated the excretion of arsenic (*München. med. Wchnschr.*, July 19, 1910, p. 1531). In the use of this remedy they found that the excretion in paralytics required from twelve to fourteen days and the amount excreted in the urine was quite variable. In the case of epileptics with healthy kidneys, the excretion of arsenic lasted only about three days. This is true also of ordinary syphilitics. Generally the excretion was completed sooner after the intravenous injection than after the intramuscular injection. They found that the preparation was not absorbed to any great extent by the rectum, but a considerable amount of arsenic was excreted in the stool after intramuscular or intravenous injections. The excretion per rectum continued longer than by the kidneys. They found also that after an intramuscular injection a considerable amount of arsenic remained for a long time in the muscular tissues. Thus in cases which came to autopsy they found arsenic in the gluteal muscles, in one case after fourteen days and in another after thirty-six days.

* This subject is discussed editorially in this issue and also in the Berlin Budapest letters, pages 609 and 610.

Gall-Stones Containing Typhoid Bacilli.—An instance of the formation of cholesterol gall-stones containing typhoid bacilli within sixty-eight days of the onset of typhoid fever is reported by Hertz and Adams (*Proc. Roy. Soc. Med.*, May, 1910). A woman, aged 24, had always been constipated, her bowels never moving more than twice a week, and then only with the aid of purgatives. For three years or over, since the birth of her child, she had occasionally suffered from a dull aching pain in the epigastrium, which began immediately after food and was occasionally relieved by vomiting. It was not sufficiently serious to cause her to take medical advice. She had not had typhoid previously. The typhoid fever ran a typical course from Dec. 2, 1909, to Jan. 14, 1910, when she had a relapse, with fever and rash, which lasted until January 24. February 1 she complained for the first time of pain in the epigastrium and back, and vomited. The gall-bladder was found to be enlarged and slightly tender. There was no jaundice or pyrexia. The pain persisted and attacks of bilious vomiting occurred from time to time. On February 18 the temperature rose to 99.4 F. and the patient was sent to the hospital and from the symptoms suppurative cholecystitis was diagnosed. The patient was operated on the same evening. The gall-bladder was distended, tense and adherent to surrounding structures. It was opened and 4 ounces of clear fluid escaped and half an ounce of pus was evacuated. Twenty-five faceted gall-stones were removed from the gall-bladder, which consisted of slightly pigmented cholesterol of the usual hardness. The clear fluid and pus both contained pure culture of *B. typhosus*. The same organism was isolated from the center of some of the gall-stones. As this was the patient's first attack of typhoid fever, and the *B. typhosus* was found in the center of the gall-stones, it is clear that they must have been formed between the onset of the typhoid fever on December 12 and the operation February 18, a period of sixty-eight days.

Recognition of the Individual by Hemolytic Methods.—Dr. C. Todd and R. G. White reported to the Royal Society, June 16 (*Nature*, June 23), experiments which they sum up as follows: "1. The immunization of the ox with the red blood corpuscles of other oxen gives rise to the formation of a hemolytic amboceptor in the blood of the immunized animals. 2. The amboceptor so formed is an isolysin, but not an autolysin. 3. The race of the animal appears to have very little influence on the resulting hemolysins. 4. The serum of an animal so treated acts very differently on the red blood corpuscles of different individual oxen. 5. The serums of different individuals similarly immunized differ from one another in their action on the corpuscles of different individuals. 6. If the serum of a single immunized animal be 'exhausted' with excess of the corpuscles of one other individual, the serum loses its power of hemolyzing the corpuscles of this individual, while retaining the power of hemolyzing the corpuscles of many, but not all, other individuals. 7. If, however, a polyvalent serum be made by mixing the serum of a large number of immunized animals, and this serum is exhausted with the corpuscles of any one individual, the serum entirely loses its power of hemolyzing the corpuscles of this individual, but remains strongly hemolytic for all other individuals not closely related to the individual the corpuscles of which were employed for the exhaustion of the serum. (N. B.—It is possible that exceptions may be found.) 8. The red blood corpuscles of any individual are thus characterized by a definite individuality of their own, and can be distinguished from those of any other individual of the same species."

The Influence of the Operation of Resection of the Kidney on Function.—The experimental work which forms the basis of this preliminary report by Cunningham (*Bull. VI, Med. School of Harvard University*, April, 1910) was suggested by an operation on a young woman with but a single kidney, which contained calculi. The kidney was exposed and split in Brödel's line and three calculi of medium size removed from the kidney and another the size of a pea from the ureter through the pelvis of the kidney. The ureter was then proved to be patent. The incision in the pelvis was closed with fine silk and in the substance with mattress sutures of catgut. Following operation about 1 ounce of bloody urine was removed by catheter. The patient was catheterized one hour later and then every half-hour subsequently, but no urine was obtained from the bladder until eight and one-half hours after operation. At that time a little more than 1 dram of slightly bloody urine was obtained. The amount of urine then increased gradually to the normal amount. The question to be determined by Cunningham's experiments was: Does a kidney which is subjected to an operation, temporarily cease functioning, (a) when the wound is closed by sutures, (b) when the kidney wound is drained, by a rubber tube or by gauze. Rabbits were used in the experiments and methylene blue was injected into the stomach hypodermically. The findings and conclusions were as follows: The rabbit normally urinates about every three hours. After a left-sided nephrectomy, urine was not voided for from ten to eighteen hours, except in one instance, when a blue urine was voided in from four to six hours. After resecting a portion of the remaining kidney, opening into the renal pelvis and closing the wound entirely, urination did not take place for between thirty-eight and forty-three hours, and in one instance between forty-three and forty-four hours. After resecting a portion of the kidney and draining it with a rubber tube through the loin, urine was secreted in every animal before eight hours, and in most between six and seven. After resecting a portion of the kidney and draining it with gauze through the loin, urine was secreted in all the animals between six and seven hours except in one which showed a blue fluid between four and five hours. The urine drained through the loin and also through the ureter into the bladder. Cunningham says that it will thus be seen that following the operation of kidney resection and closing the wound in the kidney entirely, there results a temporary arrest of the kidney function; that performing the same operation and draining the kidney pelvis, not closing the kidney wound entirely, does not cause a suppression of kidney function, in the same degree at least; that when the kidney pelvis is drained by a rubber tube, the drainage through the loin is freer than when the gauze is employed. He is not able to explain any of the facts stated.

The Nervous Child.—It is a lamentable and disquieting fact that nervousness in childhood is increasing, says A. Roos (*Layman's Med. Jour.*, May, 1910). Nervous children are present in all classes of society, in the country as well as in the cities. Even shortly after birth may be observed a peculiar smile, distortion of features, spasmodic rolling of the eyeballs and incoordinate movements, the primary cause of which may be some trivial disturbance of digestion indicating a state of nervous morbidity. Convulsions are common a few months later during dentition; also sleeplessness, irritability and periods of crying and screaming without adequate cause. In pneumonia the nervous symptoms may be of sufficient intensity to mask the symptoms of the primary disease and they may resemble meningitis. Two distinct types of nervous temperament are recognized, psychic hyperesthesia and psychic hypesthesia. To these should be added a third condition characterized by periods of depression and dulness alternating with intervals of excitability. In the class of the first type are the children of delicate, spare build, mentally too far advanced for their age. The children of the apathetic class are less frequent, are usually well nourished, with an abundance of adipose tissue, phlegmatic and indifferent to external stimuli. Those of the changeable temperament are most frequently observed. They are apt to be effusive in their fondness for others at one time, and at another without cause indifferent, offensive and quarrelsome. They are enthusiastic in their play or school work, or again apathetic, indolent and discouraged. In the nervous child the resistance to external influences is diminished so that trivial causes, such as sudden excitement, a thunderstorm or the sight of a wound or drop of blood produces a psychic effect influencing the entire nervous system and the vasomotor system, producing pallor or vertigo, faintness and unconsciousness, or the influences may be transmitted to the motor nerves and we see the child uninterruptedly in motion. Standing, walking, sitting positions rapidly succeed each other, the fingers, hands and feet are never at

rest; nervous twitching of the facial muscles is not uncommon; the internal organs are not infrequently affected and there are palpitation, cramp-like pains in the region of the bladder and a desire to evacuate this organ or the bowels. Frequent and prolonged headaches are common. Nervousness in both parents is transmitted to offspring, but nervousness on the paternal side alone less frequently, unless it amounts to a neurosis. Nervousness on the maternal side is more frequently transmitted. Indifference, disrespect, contempt, etc., on the part of the parents, or alcoholism of the latter, will have effect on the children of such a union. Acquired causes of nervousness may be pathologic, as concussion or contusion of the brain from accident, acute congestion of the brain from infectious diseases, sunstroke, etc., and acute encephalitis or meningitis. In addition, are reflex causes, such as eruption of teeth, worms, constipation and localized pains, and constitutional diseases, such as anemia, albuminuria, diabetes, rickets, autointoxication, suppurative conditions, etc. Physiologic causes may be attributed to deficiencies in connection with the bringing up of the child, and may refer to the physical condition, the mental and moral state. Impressions on the extraordinarily sensitive brain of the first and second stages of childhood may become permanent and indelible, and should therefore be correct. Improper literature should be strictly avoided. Evening dancing parties, the theater, etc., for the very young are harmful, because they interfere with the regularity of habit and sleep. Remorse, injustice, jealousy, anger, are powerful causes of excitability. A systematized, regular method of living is of extreme importance, and should be begun immediately after birth and strictly adhered to. Errors in mental education are made not only in school, but more frequently in the home. Few parents devote themselves to the education of their children by the application of thorough discipline and a definite system or method. Some parents are authoritative and unnecessarily rigorous, avoiding explanations; others are indifferent, indolent and excessively indulgent. The child is without guide, is conscious of its power and the effect of its tears, is a veritable tyrant and abuses its power in order to obtain increased privilege. The inevitable consequence of this kind of training is pronounced nervousness. A sane method must be adopted in bringing up children and such a system must be adhered to.

Typhoid and the Milk-Supply of Washington Hospitals.—The Washington Milk Conference of 1907 decided that the limit of safety for milk to be consumed raw required that it should contain not more than 100,000 bacteria to the centimeter, and that all milk containing more should be pasteurized (*Wash. Med. Ann.*, ix, No. 1). The high mortality from typhoid fever in the hospitals of the District of Columbia and its possible connection with the milk supply led the Hygienic Laboratory of the U. S. M.-H. Service to collect samples of milk as found in different localities in Washington, with the result that the minimum count showed 340,000 bacteria per cm., running from that to 2, 3, 4, 5, 10, 15, 50 and up to 111 million per centimeter, and among these samples were some from a half dozen prominent hospitals and asylums. The average mortality from typhoid fever in the United States is 10 per cent., but the mortality in the Washington hospitals sometimes reaches the appalling rate of 16, 18, 20 and even 25 per cent., and in only one was it as low as 7 per cent. The danger from raw or improperly pasteurized cream is even greater than from improperly pasteurized milk, as it is found that the cream contains about 60 per cent. of the bacteria, although constituting but one-twentieth of the whole milk. Those who are studying the problem believe that nothing short of proper pasteurization will ever accomplish a reduction in the death-rate, and they urge municipal control over pasteurization plants so that the people may not be lured into a false sense of security by the mere word "pasteurized," since commercial pasteurization is often done so imperfectly as to be worse than none at all. Because milk offers a good supply of nourishment bacteria increase at an amazing rate, but the rate of increase is approximately seventy times greater at 60 F. than at 50 F., and this explains the high mortality in the summer time of infants fed on raw or improperly pasteurized milk.

Medicolegal

Liability for Malpractice in Case of Inexplicable Burn in Administering Static Electricity

The Supreme Court of Minnesota says, in Frisk vs. Cannon & Balcome (126 N. W. R., 67), that the plaintiff charged the defendants, as partners engaged in the practice of medicine, with having negligently treated her with static electricity, to her injury, but the trial court was justified in concluding that the defendants were not partners, and that the defendant Cannon was not liable for the alleged negligence of the defendant Balcome.

The plaintiff alleges that she was placed on an insulated platform connected with the electrical machine, a conical cap was put above and in front of her head, and static electricity was caused to be discharged by the machine through the cap on her head; that the defendant then left the room, and no attendant was present. After the lapse of eight or ten minutes the plaintiff screamed. The defendant immediately entered the room, and discovered that her head was smoking. A large portion of the top and sides of her head was seriously burned. Five thousand dollars damages were claimed, and a verdict of $1,200 was returned in the plaintiff's favor, against the defendant Balcome, judgment for which is affirmed.

The statement by the court is very brief, but much that physicians will be interested in knowing about the case is contained in the dissenting opinion of Justice Jaggard. He says that the defendant called a number of well-known experts of the highest character. The effect of their testimony was: The amperage or the quantity of electricity generated by the machine in question was infinitesimal. It figured at some one-millionth of an ampere; but the electro-motive force was large. The effect resembled shooting a piece of eider-down from a gun. There was great force, but the missile was so slight in character that it could do no harm. No case had ever been known of injury to a person by a static machine, nor was one known in the literature of the profession. The occurrence was "unique in experience," "a perfect mystery, contrary to all laws of physics." It could not be accounted for by any action of the static machine. A physician who had been using one in his practice daily since 1885, and had given perhaps 100,000 treatments, gave similar testimony. Another physician, with 17 years' experience in the use of the machine, testified that he knew of nothing which could have produced this injury by this machine, and he knew of nothing which could have prevented it.

The way in which the conical cap, described as an inverted crown or sunflower, was placed near the plaintiff's head, the one suggested explanation of how the accident happened, was not shown to have been its cause. According to the plaintiff, that cap was placed within two or three inches from her head, instead of six or eight inches away, as at other times. The decrease in distance tended to increase the strength of the current communicated to the patient's head; but it had never been known to produce the effect here complained of before the accident. It was shown by uncontradicted and unimpeached testimony that the force of the charge or amount of electricity used or turned on the plaintiff in its usual operation would have been absolutely harmless, however the cap had been adjusted; that if the cap had been placed immediately on top of her head, it might have produced unpleasant sensations, but according to all known experience would not have injured the plaintiff. "Good practice requires that it should just clear the head; that is all." The patient could perceive the cone in front of her, so that, if there had been a spark, she would have seen it, but did not see it. Moreover, it is the universal experience that there might have been a spark without possible harm. It was also to be noted that it was the back of the head which was burned.

Nor was the absence of any assistant in the room with the plaintiff shown to have been a material factor. How such person, if present, could have prevented the harm, did not appear. If he had, for example, turned off the electricity

which operated the machine, its wheels would have revolved for some time from momentum. Nor was it suggested how any interposition could have been effective to have stopped the passage of the current, which the plaintiff said took more time than a second, but which must have been practically instantaneous. It appeared that the presence of a physician or an assistant was not required by good medical practice, nor that there was any reasonable anticipation of harm which suggested it. Neither the facts in the record nor any conjecture reasonably founded thereon tended to show that the failure of the physician to give the plaintiff any directions concerning the use of the machine, or to be present in person or by representative, was the proximate cause of the harm complained of.

The defendant had a right to rely on the presumption of the uniformity of the operation of natural forces. He was not bound to anticipate that a certain exceptional phenomenon, beyond the range of invariable and extensive experience, would happen. This accident was like a flash from a clear sky.

For such reasons Justice Jaggard says that he is compelled to conclude that the plaintiff suffered from the results of a physical force partially known and in some measure unknown, whose particular potentiality for harm could not have been reasonably foreseen, and for which the defendant was not responsible.

But the Supreme Court holds that the plaintiff made out a prima facie case of negligence. It says that her only expert testified that, if the cap were brought close to the head and there was volume enough, there would be a continuous spark and harm would result. His testimony to the effect that the distance the cap was placed from the plaintiff's head would determine whether a burn was likely to occur, together with the testimony of the plaintiff that it was not adjusted as on former occasions, and also the conduct of the defendant in leaving the plaintiff in the room unattended, while the machine was working, for the space of ten minutes, during which time the burn occurred, in connection with the other evidence in the case, was sufficient to take the question of the defendant's negligence to the jury, with the result already stated.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

July 30

1 Ventilation in Schools. W. A. Evans, Chicago.
2 Tendon Transfer for Correction of Spastic Hand Deformity. C. N. Dowd, New York.
3 *The Use of Vaccines, Serums and the Hiss Extract of Leukocytes in the Treatment of Eye, Ear, Nose and Throat Affections. J. G. Dwyer, New York.
4 A Simple Complement Fixation Technic in Syphilis. A. Fleming and F. J. Clemenger, London, Eng.
5 In What Way Can Laryngology Aid in Making the Diagnosis of Incipient Pulmonary Tuberculosis? W. Freudenthal, New York.
6 Pellagra in Illinois. W. F. Waugh, Chicago.
7 *A Useful Accessory in the Treatment of Varicose Ulcers. E. H. Pool, New York.
8 Urticaria Caused by the Sun's Rays. B. F. Ochs, New York.

3. Published in *Annals of Otology, Rhinology and Laryngology*, for June, 1910.

7. **Treatment of Varicose Veins.**—The procedure followed by Pool is as follows: At the time of the dressing, three times a week, the patient is made to lie on the back on the examining table with both legs elevated almost to a right angle and supported against the wall; the patient lies in this position for about 15 minutes. For the first few treatments massage is administered, stroking the limb toward the trunk. Before lowering the legs they are cleansed and dressed in an appropriate manner by strapping, medicinal applications, etc., and a muslin bandage is applied tightly and smoothly. The patient is instructed to resume this position three times a day for fifteen minutes each time, and at other times if the bandage feels too tight. Pool says that no complaints have been made concerning the discomfort of the bandage and very few as to the tightness of the bandage. All the patients have expressed themselves from the outset as very much pleased with the results, stating that the legs are not only more comfortable, but show a more marked disposition to heal than by other methods. By this method the engorgement of the veins and lymphatics is prevented, and the edema diminished, as is evidenced by rapid diminution in the diameter of the legs after a brief period of treatment. Occlusion of the deep veins contraindicates the tight bandaging.

Pool emphasizes that the method is intended to supplement and not as a substitute for other procedures. It will simply expedite the response of the tissues to curative agents. Appropriate local treatment must be as assiduously pursued as when this method is not followed. The only departure from the usual routine here suggested is the detail of elevation which seems to enhance the effect of the bandaging.

New York Medical Journal

July 30

9 Lichen Planus. C. A. Kinch, New York.
10 Spondylitis Deformans. A. M. Crispin, New York.
11 The Borderland Between Medicine and Surgery. R. Hill, St. Louis.
12 Diagnosis and Treatment of Cancer of the Uterus. X. O. Werder, Pittsburg.
13 *The Spirit of Prophylaxis in Relation to Psychiatry. H. W. Wright, New York.
14 *A Method of Anesthetizing to be Employed in Operating on the Aged. J. H. Gleason, Manchester, N. H.
15 Nontraumatic Gingival Hemorrhage. H. Illoway, New York.
16 Does Internal Medication Tend to Abort or Cure Abscess and the Tendency Thereto? R. E. Coughlin, Brooklyn.

13. **Prophylaxis in Psychiatry.**—Summing up his conclusions of the future of psychiatry as a factor in the field of social service, Wright says that cooperative education is the keystone in the arch of prophylaxis. Cooperation which is not merely abstract, in the nature of annual conferences and reports between one profession and another, but direct personal cooperation, such as is now obtainable between the worker in the charitable relief agencies and the physicians and nurses of hospital dispensaries; cooperation with the schools, the social settlements, charitable relief organizations, the courts and the clergy; education in the schools, from public platforms, through the direction of the public library and the press, and more directly in the clinic and the home in matters pertaining to mental hygiene, by those properly qualified in psychopathology.

If this can be accomplished, statistics of the etiology of insanity will not, as now, he says, represent much labor lost, except as resulting in a vast array of ambiguous uncorrelated statements, but more and more efficient labor with a clearer insight; while the benefit to the unfortunate patient and his relatives, which after all is the chief thing to consider, will be immeasurable by any statistical method.

14. **Anesthesia in the Aged.**—After having used a combined partial scopolamin anesthesia with local anesthesia, using 0.1 per cent. cocain for six years, Gleason now uses partial scopolamin anesthesia, combined with local sterile water infiltration anesthesia in operating on the aged. He says that the aim should be to produce complete sensory paralysis of the part. Satisfactory results in the matter of producing regional anesthesia are dependent on the technic, and in order to become proficient in this, practice and experience are essential. The operator must be familiar with the anatomy of the parts, especially of the sensory nerves. The injections may be thus made with accuracy where they will be most beneficial and without unnecessary insertions of the needle. To gain control of the field it is necessary to block the nerves by depositing the sterile water around and in close proximity to them. Gleason places emphasis on the necessity of producing the condition of absolute nerve block in order to obtain the best results. Considerable fluid and some force must therefore be used.

The degree of anesthesia produced is governed by the accuracy with which the location of the nerves is determined,

the amount of fluid injected, and the degree of force used. It is in this particular that experience and the resulting judgment which is developed is most valuable. Gleason is convinced that by this method the management of surgical diseases in old people may be made comparatively safe, the mortality much reduced, and seemingly inoperable cases made operable and curable.

Boston Medical and Surgical Journal

July 28

17 Gynecologic Operations on Neurasthenics: Advantages and Disadvantages. E. Reynolds, Boston.
18 *Nephritis without Albumen. C. A. Howland, Fall River.
19 *Drugs in Practice. M. V. Tyrode, Boston.
20 The Sputum of Typhoid Patients as a Possible Source of Infection. E. S. Tenney, Fort Strong, Mass.
21 The Nasal Septum: Important Points in Anatomy and Submucous Resection. O. A. Lothrop, Boston.
22 *The Use of Tuberculin at the Sharon Sanatorium. W. A. Griffin, Sharon, Mass.

18. **Nephritis Without Albumen.**—That gross and severe lesions of the kidney may exist without albumen being present in the urine, or at least without being discernible by the methods ordinarily used in hospital and office work, is the conclusion at which Howland has arrived. From April 1 to December, 1909, he examined 550 specimens of urine. All urine was centrifuged from three to six minutes in an electric centrifuge giving from 1,000 to 1,800 revolutions to the minute. The sediment was removed by a thoroughly clean small pipette, the finger being held over the end and the point lowered until just over the sediment. The finger was then removed from the outer end sufficiently to allow only a small amount of the sediment to be admitted into the pipette, which was then held there by replacing the finger on the outer end. The sediment was placed on a glass slide and spread out over at least one square inch of surface, the slide being then placed under the microscope and held in position on a moving stage. The sediment was then examined under low power with closed diaphragm, and by means of the moving stage a systematic search of the whole field made. Heller's nitric acid test was used in all cases, with filtered urine, and the result tested before a dark background. As a rule, only morning specimens were used. The average amount was from 6 to 8 ounces, and the specimens were not over twelve hours old.

In many of the cases recorded numerous examinations were made and several methods employed. In cases in the acute stages which showed casts the urine was examined every few days, and in chronic conditions once or twice a week. Howland reports 21 cases which illustrate the presence of nephritis without the presence of albumen. All cases which showed granular in addition to hyalin casts are included, but not those cases which showed one or two hyalin casts only. Casts without albumen were found in a large proportion of those patients who were suffering from conditions such as appendicitis, typhoid, peritonitis, gangrene and evulsion of the scalp. In these patients the toxins incident to these troubles doubtless had a pathologic effect on the kidney without producing albumen.

19. **Drugs in Practice.**—Tyrode cites a few instances to show what can be done by the proper use of drugs. He praises the work done by the Council on Pharmacy and Chemistry, directing attention to its various publications which he urges practitioners of medicine to read. Speaking of new drugs, he says that there is no doubt that this flood of new drugs and combinations has its chief value in increasing the income of the manufacturers rather than advancing the art of therapeutics, for it is not so much a large number of a certain class of medicinal agents which we need, but rather a better understanding of the already known ones. It is true that we must place great hopes in the development of synthetic pharmacology, i. e., the building up of new compounds having certain desirable actions but not possessing certain undesirable ones at the same time. For instance, of the hundreds of newer coal tars as antipyretics and analgesics none have really surpassed some of the older compounds. The newer artificial morphin derivatives have not proved themselves as valuable as morphin and codein. The new bromid substitutes are not equal to potassium bromid. Chloral still remains the most powerful hypnotic of the fatty acid series and is far superior in activity to any of its substitutes, and frequently not much more dangerous.

A physician who pretends to treat patients should know how to mix drugs in a prescription himself without the suggestions of a patent medicine house, and furthermore, if he desires any ready-made mixtures, he can find all sorts in the United States Pharmacopeia and National Formulary. Much better results at lower cost will be obtained by using home-made beef juice, scraped beef, etc., instead of the patented beef-preparations; likewise arrow-root, cornstarch, blanc-mange, barley-water, tapioca and rice will advantageously fill the place of the patented cereals, as the malted milks and infant foods. Instead of the patented fats, as various emulsions of cod-liver oil, and some particular frauds claiming to contain the active principles of cod-liver oil without the disagreeable fat, far better results may be reached by the employment of cream, buttermilk and olive oil. If one wishes to use alcoholic preparations, the ordinary good brands of wine, beer, ales and spirits will not only equal but excel any patent wines or malt extracts. The farcical use of uric acid solvents, as patented lithia waters and certain piperazin compounds, can be advantageously substituted by the use of large amounts of ordinary water with simple alkaline salts, as potassium citrate and sodium bicarbonate.

22. **Tuberculin at the Sharon Sanatorium.**—Tuberculin has been used at the Sharon Sanatorium for diagnostic purposes for 8 years, and as a therapeutic measure for 5 years. One hundred and nineteen patients have been tested by it, and 36 have had it as treatment. 44 have been discharged less than a year ago from the sanatorium ,and these are not considered in Griffin's report, which is intended to be, in part, a record of the present condition of those patients who have received tuberculin. This leaves, then, to be considered, 83 patients who have been tested and 28 who have been treated. Of those tested, 4 are known to have died, but only one of these died of tuberculosis. Griffin says that it is wise and safe to test all patients with signs in the chest who do not present tubercle bacilli in the sputa, using for this test the submucous method. If disease is found, a cure should be begun and the patient should be taught sanatorium methods. Neither does there seem any harm in using as high a dose as 10 mgm., since, when this dose is worked up to gradually, it does not cause a severe reaction. And, further, if a less dose were taken as the limit of use, some cases would fail to be detected which might need sanatorium treatment.

Treatment with tuberculin was begun rather experimentally on 3 patients who were moderately advanced and who had apparently come to a standstill in their improvement under general hygienic conditions. They seemed peculiarly fitted, therefore, to test the value of some treatment in addition to the regular sanatorium régime. These first three cases were so encouraging that each year more have been given tuberculin treatment, until at present there are ten having it, or nearly half the capacity of the sanatorium. In all cases either old tuberculin or bouillon filtrate have been used.

Of the 28 patients who have received the treatment, 6 have died. Two of these were far advanced at the start and were given injections at their own request. Three others who were not favorable cases were given tuberculin on the chance that it might help when all probability of help by ordinary means seemed futile. The sixth patient did well and left the sanatorium in good condition, dying about a year later of a sudden hemoptysis. Two others of the 28 returned to a poor environment, contrary to advice, and are not doing well. Two more have relapsed in spite of care. These last cases may improve in the future, and from what can be learned they are certainly not hopelessly sick. This leaves 18 who are in good condition. From his experience at Sharon Griffin feels that tuberculin when carefully given is not likely to do any harm and that it frequently is of great benefit, affecting a cure in some patients that would not be expected to do well under ordinary methods of treatment, and, finally, that no patients with frank tuberculosis should be denied the privilege of tuberculin treatment if they desire to have it.

Medical Fortnightly, St. Louis

July 11

23 Intestinal Obstruction from Appendiceal Adhesions. C. R. Dudley, St. Louis.
24 Problems of the Twentieth Century Physician. J. T. Woodward, Elkhart, Ill.

Lancet-Clinic, Cincinnati

July 23

25 Syphilitic and Cancerous Manifestations of the Oral Cavity from the Standpoint of the Dentist. C. J. Broeman, Cincinnati.
26 Pitfalls of the Anti-tuberculosis Crusade. C. G. Randall, Harveysburg, Ohio.
27 *Prolapse of the Urethra. M. A. Tate, Cincinnati.

27. **Prolapse of Urethra.**—A woman, aged 54, married some 20 years, never pregnant, gave a history of painful micturition and presence of protruding mass of indefinite induration at urethra. On examination a provisional diagnosis of a primary carcinoma of the urethra was made from the symptoms and the feel of the prolapsed mass. The family history of the patient was very good and positively free from tuberculosis and carcinoma. A wide removal of the mass was made and microscopic examination showed it to be an angioma. For a period of one week catheterization had to be practiced. The subsequent history after one week was that the patient had good control, urination was painless, and from appearance, recovery was complete.

Kentucky Medical Journal, Bowling Green

July

28 The Nurse. W. E. Senour, Bellevue.
29 Pellagra, with Exhibition of Case. R. L. Bone, Madisonville.
30 The Physician as the Public Benefit. O. R. Kidd, Paducah.
31 The Puerperium or the Puerperal State: Derivation and Classification. W. B. Gossett, Louisville.
32 Hydatidiform Mole. C. C. Garr, Lexington.

Journal Experimental Medicine, New York

July

33 *The Cutaneous Trichophytin Reaction. S. Amberg, Baltimore.
34 *Latent Life of Arteries. A. Carrel, New York.
35 *Studies in Edema. M. S. Fleisher and L. Loeb, Philadelphia.
36 *Idem. M. S. Fleisher and L. Loeb, Philadelphia.
37 *The Origin, Distribution and Significance of Fuchsin Bodies, with Special Staining Technic. W. H. Brown, Madison, Wis.
38 An Extremely Pure Preparation of Ricin. C. W. Field, Louisville.
39 *Neurocytoma or Neuroblastoma, a Kind of Tumor not Generally Recognized. J. H. Wright, Boston.
40 Subcutaneous Reaction of Rabbits to Horse Serum. J. H. M. Know, W. L. Moss and G. L. Brown, Baltimore.

33. **Cutaneous Trichophytin Reaction.**—Patients suffering with trichophytia profunda respond to subcutaneous injections of culture filtrates of different strains of trichophyton, called trichophytin, with local and general reaction. The local reaction ocurring at the point of injection gives rise to inflammation and infiltration. Besides this reaction at the point of injection, but less constantly and less pronounced, there occurs another local reaction in the diseased area. The general reaction consists of malaise, headache, muscular pains, rise of temperature, etc. Superficial cases of trichophytia do not give any reaction under the usual conditions. The analogy of this reaction with the tuberculin reaction in cases of tuberculosis is very striking. The trichophytin reaction is just as specific as the tuberculin reaction in the sense that it is not observed in healthy individuals or in patients suffering with diseases not due to an infection with hyphomycetes belonging to the trichophyton group. It is of interest that trichophytin prepared from different types of trichophyton derived from clinically different cases act alike, so that this reaction cannot be utilized for the differentiation of various trichophyton infections.

The total number vaccinated by Amberg with trichophytin was 131. Of these, 107 were vaccinated simultaneously with tuberculin, bouillon treated exactly like the tuberculin but without any bacteria, and trichophytin. The bouillon vaccinations were made in order to see whether it might give reaction by itself. In one case only, a doubtful reaction occurred, and this was at the point where the bouillon was inoculated. All the other cases showed a completely negative result. Besides these 107, ten were vaccinated with tuberculin and trichophytin, one with bouillon and trichophytin, and 13 only with trichophytin. The tuberculin vaccinations did not give any results not noted before. Amberg concludes from his observations that there exists a far-reaching analogy between the cutaneous trichophytin reaction and the cutaneous tuberculin reaction. Both indicate that the organism is the seat of a definite infection or that it has passed through such infection. Both may persist for a long time after the active disease has come to rest, indicating that the infection has left the organism in a state of altered reactivity—allergy. Under certain conditions both may be of diagnostic value, but since the reaction persists for a long time after the infection has passed, the negative reaction may be of greater value, excluding the existence of a specific infection. The analogy of the trichophytin reaction with the tuberculin reaction is not only limited to the obvious clinical manifestations, but, as in the tuberculin reaction, it can be shown that with uniform concentration of antibody the intensity of the reaction is dependent on the concentration of the trichophytin. A tentative explanation of the halo formation is offered by Amberg, based on a rapidly renewed formation of antibody stimulated probably by the entrance of a small amount of allergen into the general circulation.

34. **Latent Life of Arteries.**—Carrel has found that when a segment of artery, killed by heat, formalin or glycerin, is transplanted, it undergoes a rapid degeneration. Its muscle fibers disappear while the tissue of the host reacts by building a new wall of connective tissue. When the transplanted vessel has been preserved in a condition of latent life, no degeneration of the wall occurs, or the wall undergoes only partial degeneration. The muscle fibers can keep their normal appearance, even for a long time after operation. It is, therefore, demonstrated that arteries can be preserved outside of the body in a condition of unmanifested actual life. The best method of preservation consists of placing the vessels, immersed in petrolatum, in an ice-box, the temperature of which is slightly above the freezing point. From a surgical standpoint, the transplantation of preserved vessels can be used with some safety. When the arteries were kept in defibrinated bloor or petrolatum and in cold storage, the proportion of positive results was 75 and 80 per cent., and this can probably be increased.

35. **Studies in Edema.**—In order to determine further the factors which influence absorption from the peritoneal cavity, Fleisher and Loeb studied the absorption in nephrectomized animals and in animals injected with uranium nitrate, 20 and 72 hours after injection. In the experiments recorded the influence of the osmotic pressure of the blood on absorption of fluid from the peritoneal cavity becomes apparent. Nephrectomy, removal of the adrenals, and other operations increase the osmotic pressure of the cavity. On the other hand, ether narcosis, at the period at which the authors tested its influence, causes neither an increase of osmotic pressure of the blood nor an increase in the absorption of fluid from the peritoneal cavity. The increased osmotic pressure and increasesd absorption of fluid in nephrectomized animals is to a great extent not a specific effect of the removal of the kidneys, but approximately the same conditions can be observed after incisions of the skin and muscles. After poisoning with uranium nitrate and in cases of peritonitis, complicating factors come into play, and under such conditions the absorption from the peritoneal cavity is not increased, notwithstanding the higher osmotic pressure of the blood.

In conditions in which the osmotic pressure of the blood is very high before the injection of sodium chlorid solution into the peritoneal cavity, nephrectomized rabbits or rabbits injected with uranium nitrate 3 days previously, adrenalin causes no increase, or only a very slight one, in the absorption of peritoneal fluid. On the other hand, one day after the injection of the uranium nitrate the osmotic pressure of the blood is only slightly increased before the injection of the sodium chlorid solution into the peritoneal cavity, and here adrenalin causes a marked increase in absorption of fluid from the peritoneal cavity. In animals injected with uranium nitrate the retention of sodium chlorid and other osmotically active substances in the blood is not entirely due to interference with the functions of the kidney. This retention may be explained either by an inability of the

tissues to bind the sodium chlorid and other osmotically active substances or to a diminished permeability of the blood vessels for such substances.

While in nephrectomized animals the elimination of sodium chlorid from the peritoneal cavity and also from the blood is increased, in animals injected with uranium nitrate such an elimination is diminished. This increase in the sodium chlorid content of the peritoneal fluid in animals treated with uranium nitrate is accompanied by a decrease in the diffusion of other osmotically active substances into the peritoneal cavity. While in nephrectomized animals and in animals injected with uranium nitrate one day previously, adrenalin causes a diminution of the fluid retained in the blood-vessels similar to the diminution noted in normal animals, adrenalin no longer exerts such an effort at a later stage of the uranium nitrate poisoning. At this period after the administration of uranium nitrate, the retention of fluid in the blood vessels is apparently equal in experiments with and without the injection of adrenalin, and following the absorption of fluid from the peritoneal cavity, the retention of fluid in the blood vessels in the uranium nitrate animals is increased comparatively to a greater extent than in normal animals.

36. **Id.**—In this paper Fleisher and Loeb record their observations on the influence of caffein on absorption from the peritoneal cavity and the influence of diuresis in edema. In normal animals the injection of caffein slightly diminishes the absorption of fluid from the peritoneal cavity, in spite of the fact that the amount of fluid and sodium chlorid eliminated through the kidneys is markedly increased. The lessened absorption of fluid is due to a slight lowering of the osmotic pressure of the blood. In nephrectomized animals caffein increases the absorption of fluid from the peritoneal cavity; the increase in absorption is greater in nephrectomized animals which received caffein than in nephrectomized animals which did not receive this substance, and it is due to additive increase in the osmotic pressure of the blood. In animals injected with uranium nitrate three days previously, caffein diminishes the absorption of fluid from the peritoneal cavity, notwithstanding the high osmotic pressure of the blood observed in such animals.

At the time of the conclusion of the absorption experiments, the amount of fluid retained in the vessels was found to be diminished in each series in which caffein was used. Only in certain cases can this be due to the increased amount of fluid leaving the blood vessels through the kidneys; in other cases it can only be due to a movement of water from the blood vessels into the tissues caused by the injection of caffein. In normal animals, in nephrectomized animals and in animals in which an operation not directly affecting the kidneys had been performed, caffein caused an absolute and relative increase in the elimination of sodium chlorid from the peritoneal fluid, as a result of which the remaining peritoneal fluid shows a lessened content of sodium chlorid. Caffein causes also a decrease in the sodium chlorid content of the blood.

Summarizing all experiments in which they studied the absorption from the peritoneal cavity, Fleisher and Loeb state that changes in the osmotic pressure of the blood represent the principal factor in explaining the variations in the rate of absorption of fluid from the peritoneal cavity. There exists no direct relation between an increase in the rate of absorption of fluid from the peritoneal cavity and an increase in the amount of urine secreted. If it should be found that even at a period following the injection of caffein, later than that at which we have studied the absorption, a rise of the osmotic pressure of the blood does not appear, then we may state that the diminution in the amount of edema in the body cavities resulting from the administration of caffein is entirely due to an inhibition of the production of edema and not to an increased absorption of fluid from the serous body cavities.

37. **Fuchsin Bodies.**—The material used by Brown included over 200 distinct specimens representing nearly all the organs of the body and a great variety of pathologic conditions as well as some normal tissues. This material was selected partly at random and partly from lesions in which Brown felt sure of finding fuchsin bodies. He believes that he is justified in assuming that the fuchsin body represents a type of body subject to wide variations in morphology and in staining reaction. Though more frequently associated with plasma cells than with any other cell type, these bodies may and do occur in a great variety of cells, and also within blood vessels; some of these bodies are true hyalin thrombi, while others are due to autolytic changes in the red blood corpuscles. Fuchsin bodies are most numerous in granulation tissue and lymphoid areas. In the former, they follow closely the distribution of capillaries and show a parallel with the changes in the extravascular and intravascular red blood corpuscles. The number and type of fuchsin bodies in tissues can be influenced by methods of fixation, the number of typical bodies being inversely proportional to the rapidity and degree of fixation of the red blood cells. The type of body found after the best fixation is not, as a rule, what is considered the typical form, but an irregular fragmentary type or the fuchsinophilic granular form. The identity in staining reaction, the constant association with changes in red blood corpuscles, the relation to distribution of capillaries in granulation tissues, the occurrence in hemorrhagic lesions associated with pigment, the intravascular occurrence, and, finally, the close relation to pigment deposits, all indicate conclusively that fuchsin bodies arise from red blood corpuscles.

No theory of origin from plasma cells, or other granular cells, offers an adequate explanation for the origin of fuchsin bodies, nor can any theory prove adequate which does not take into account the red blood corpuscles. The peculiar association of plasma cells with fuchsin bodies and hemosiderin seems explainable on the assumption that the plasma cell in such instances is the active factor in a metabolic process, the fuchsin body representing a stage in the metabolism of hemoglobin by an intracellular enzyme, and hemosiderin, one of the products of the process.

39. **Neurocytoma or Neuroblastoma.**—Wright calls attention to a group of tumors the nature of which he believes has hitherto escaped general recognition. These tumors are rich in cells which may vary much in size and shape. They may be perverted by connective tissue by which the cells are arranged in more or less definite alveoli. Blood vessels accompanied by connective tissue are also present. The essential cells of the tumor are considered to be more or less undifferentiated nerve cells or neurocytes or neuroblasts, and hence the names neurocytoma and neuroblastoma. Wright cites briefly 12 cases seen by him or recorded in the literature.

Iowa Medical Journal, Des Moines

July

41 The Present Status of Opsonic Therapy. J. C. Ohlmacher, Independence.
42 Management of Severe Burns of the Eyes. H. C. Langworthy, Dubuque.
43 Epilepsy. W. Pfannebecker, Sigourney.

Colorado Medicine, Denver

July

44 The Sanatorium in its Application to Tuberculosis. S. G. Bonney, Denver.
45 Intubation of the Larynx, with Suggestions Regarding Anaphylaxis. F. E. Waxham, Denver.
46 Acute Yellow Atrophy of Liver, Report of Case—Recovery. F. W. Kenney, Denver.
47 Diagnosis of Gall-stone Disease. J. N. Hall, Denver.
48 Intestinal Obstruction. F. Finney, La Junta.

New York State Journal of Medicine, New York

July

50 Status Thymo Lymphaticus and its Relation to Sudden Death. G. H. Cocks, New York City.
51 Experimental Poliomyelitis. S. Flexner, New York.
52 The Vestibular Nerve in Relation to Equilibrium and its Disturbances. P. Fridenberg, New York.
53 Traumatic Esophageal Stricture in a Two-year-old Child with Radiograph. G. W. Ross, Port Ewen, N. Y.
54 The Sanitation of Summer Resorts. C. E. Low, Pulaski.
55 The Duty of the Medical Profession Toward the Cancer Problem. G. D. Gregor, Watertown.
56 Acute Suppurative Otitis Media. B. A. Richards, Rochester.
57 Paroxysmal Tachycardia. W. T. Mulligan, Rochester.
58 The Value of the "Negri Bodies" in Diagnosis of Hydrophobia. S. R. Klein, New York.
59 The Hunger-Strike and a Tube-fed Case. A. J. Capron, Kings Park.

Providence Medical Journal

July

60 Meningitis with Special Reference to the Danger of Administration of the Serum. F. T. Fulton, Providence.
61 Value of Lumbar Puncture in the Diagnosis and Treatment of Infectious Diseases of Childhood. H. G. Calder, Providence.
62 Cretinism. N. L. Niles, Providence.
63 Influence of Progressive Medicine on the Law. W. L. Chapman, Providence.

Journal of Nervous and Mental Disease, Lancaster, Pa.

July

64 *Deafness Due to Lesions in the Brain. M. A. Starr, New York.
65 *Friedreich's Ataxia. W. G. Spiller, Philadelphia.

64. Deafness Due to Lesions in the Brain.—Owing to the course of the acoustic tract, Starr says it is to be expected that lesions in the pons Varolii and in the tegmentum of the crura cerebri which affect the lemniscus should produce deafness, but cases of this kind appear to be extremely rare. He reports a case, one of an apoplectic attack characterized by alternating paralysis of motion and of sensation, by dysarthria, and by total deafness in both ears. The patient, whose arteries had become markedly atheromatous, from a long-continued abuse of alcohol, had a slight attack of right hemiplegia and aphasia in the year 1900, when 42 years old. The symptoms rapidly subsided and as the attack was not attended by loss of consciousness, it seemed probable that it was due to a thrombosis in a small vessel, leaving a focus of sclerosis of small extent and without permanent effects.

In June, 1901, a second apoplectic attack, however, occurred, more severe in character, the permanent symptoms of which remained until her death in 1909. In this attack she became unconscious and remained so for two days, after which time it was apparent that the right side of her face and the left arm and leg were paralyzed. Sensation in the right side of the face was markedly impaired to touch, temperature and pain, and the same loss of sensation was apparent in the left arm and left leg and on the left side of the body as high as the collar. In addition to the alternating paralysis and anesthesia, there was a very marked loss of muscular sense in all four extremities, being more marked on the left side. The patient was unable to swallow and choked at any attempt, so that she was fed for a month with difficulty. She was entirely incapable of pronouncing words distinctly and as time went on, this difficulty increased, being intensified by her total deafness. From the day of the attack until her death she was totally deaf in both ears. The deafness was complete for all sounds, high or low, and there was no bone conduction of sound. There was no disease of the ears. This condition was present for eight years. There was apparently no return of hearing whatever.

65. Abstracted in THE JOURNAL, July 16, 1910, p. 247.

Washington Medical Annals

July

66 Paranoia. D. P. Hickling, Washington, D. C.
67 Aphasia and Some Other Diseases of Speech. T. A. Williams, Washington.
68 Laënnec and the Stethoscope. J. D. Morgan and D. S. Lamb, Washington.
69 Bone Grafting and Osteoplasty. E. P. Magruder, Washington, D. C.
70 Surgical Treatment of Retrodisplacement of the Uterus: Special Reference to the Baldy-Webster Method of Shortening the Round Ligaments. H. D. Fry, Washington, D. C.
71 *Fracture of the Patella: The Operation of Choice Demonstrated. E. P. Magruder, Washington, D. C.
72 Acute Pancreatitis. G. T. Vaughan, Washington, D. C.

71. Abstracted in THE JOURNAL, June 4, 1910, p. 1843.

Mississippi Medical Monthly, Vicksburg

July

73 *How Should the Health of the Future Wives and Mothers be Safe-guarded? J. W. Young, Grenada.
74 *Obstacles in the Surgical Treatment of Gynecologic Cases. H. N. Page, University.
75 *The State's Care of the Tuberculous Poor. J. R. Tackett, Meridian.
76 *Why Vital Statistics? J. W. Gray, Clarksdale.

73 to 76. Abstracted in THE JOURNAL, May 14, 1910, pp. 1632, 1633.

Archives of Pediatrics, New York

July

77 Experimental Epidemic Poliomyelitis and its Relation to Human Beings. S. Flexner, New York.
78 *The First Heart Sound in Children. F. Forchheimer, Cincinnati.
79 The Hygienic Care and Management of Nervous Children. W. B. Pritchard, New York.
80 *Biologic Variations in the Higher Cerebral Centers Causing Retardation. E. R. McCready, Pittsburg.
81 Problems of Nutrition in Early Life. F. S. Meara, New York.
82 *Retained Intubation Tube (Second Intubation): Diphtheritic Paralysis: Recovery. W. P. Northrup, New York.

78, 82. Abstracted in THE JOURNAL, June 11, 1910, pp. 1906, 1907.

80. **Biologic Variations.**—Clinical evidence, says McCready, would seem to warrant the assumption that there are a large number of children retarded in their mental development on account of insufficient activity caused by biologic variations of the special centers making up the zone of language. These children are likely to be considered feeble-minded and they may eventually become so unless their condition is recognized and proper treatment instituted.

Annals of Otology, Rhinology and Laryngology, St. Louis

June

83 Some of the Newer Therapeutic Measures in Ear, Nose and Throat Affections. J. C. Beck, Chicago.
84 Brain Abscess in the Frointal Lobe, Secondary to Ethmoiditis and Frontal Sinusitis. J. McCoy, New York.
85 The Pathologic Conditions of the Nose and Throat: Special Reference to the Tubal Regions, Associated with Chronic Catarrhal Otitis Media. H. Hays, New York.
86 The Classification of Middle and Internal Diseases. S. J. Kopetsky, New York.
87 Obstinate Stenosis of the Larynx Following Diphtheria. D. J. G. Wishart, Toronto.
88 Laboratory Methods as Aids to Diagnosis of Nose, Throat and Ear Affections. J. C. Beck, Chicago.
89 Atresia of the External Auditory Canal. E. A. Forsyth, Buffalo.
90 X-ray Technic in the Treatment of Laryngeal Papillomata in Children. A. L. Gray, Richmond.
91 Removal of a Rhinestone from the Middle Ear of a Child: Exhibition of Specimen. C. F. Theisen, Albany.
92 Thrombosis of the Jugular Bulb without Apparent Involvement of the Lateral Sinus; Unusual Blood Count; Metastasis; Paralysis of External Rectus Oculi. J. R. Page, New York.
93 The Serodiagnosis of Syphilis in its Relation to Disease of the Ear. E. P. Fowler, New York.
94 Thrombosis of the Lateral Sinus: When to Operate and What Type of Operation to Choose. E. A. Crockett, Boston.
95 Cerebral Abscess Occurring in Connection with Chronic Middle Ear Suppuration. H. B. Blackwell, New York.
96 Latent Mastoiditis with Epidural Abscess. A. Braun, New York.
97 Lateral Sinus Thrombosis Treated, Postoperatively, with Hiss' Extract of Leukocytes. S. McCullagh, New York.
98 Use of Vaccines, Serums and the Hiss Extract of Leukocytes in the Treatment of Eye, Ear, Nose and Throat Infections. J. G. Dwyer, New York.

Northwestern Medicine, Seattle

July

99 *Hemorrhage from the Kidney: Significance and Treatment. P. M. Pilcher, Brooklyn.
100 Epibulbar Sarcoma. C. A. Veasy, Spokane, Wash.
101 Indigestion. A. T. Heavenrich, Seattle.
102 *Diagnosis of Chronic Stomach Troubles. K. Winslow, Seattle.
103 Acute Colitis in Children. J. H. Bristow, Portland, Ore.
104 Pain in the Lower Part of the Back, the Hip and Extending Down the Thigh. J. C. Schapps, Butte, Mont.
105 The Open or Surgical Treatment of Fractures. G. P. Thomas, Spokane.

99. Published in the *Boston Medical and Surgical Journal*, July 7, and abstracted in THE JOURNAL, July 23, 1910, p. 347. Also published in the *Long Island Medical Journal*, July, 1910.

102. **Chronic Stomach Troubles.**—Winslow emphasizes the following points: 1. That chronic so-called stomach troubles are mostly not stomach troubles; 2, that the importance of laboratory findings of the gastric contents in so-called stomach troubles is greatly exaggerated; 3, that a careful clinical history gives the clue in most cases and is the chief aid in diagnosis of so-called stomach troubles; 4, that, excluding the neuroses, the so-called chronic stomach troubles resolve themselves commonly into chronic gall-bladder disease, chronic appendicitis, duodenal ulcer, gastric ulcer and cancer. There is probably about 25 per cent. of chronic stomach troubles in which no one can make a positive diagnosis. The chief object will then be to decide whether the case warrants surgical exploration. If exploration of the abdominal and pelvic organs were done in every case where the abdomen was opened for chronic trouble, there would be less operating on the same patient and less neurosis.

Maryland Medical Journal, Baltimore

July

106 Mental Characteristics of Chronic Epilepsy. E. Jones, Toronto.
107 Lactic Bacillus Planting. A. K. Bond, Baltimore.
108 Oral Hygiene in Relation to Tuberculosis. B. B. Bennett, Baltimore.
109 Sir James Young Simpson. H. M. Cohen, Baltimore.
110 Early Diagnosis of Syphilis. H. W. Stoner, Baltimore.

Journal of the Kansas Medical Society

June

111 Public's Knowledge of the Medical Profession. O. J. Furst, Peabody.
112 Effects of Modern College Athletics on the Heart. W. M. McVey, Topeka.
113 Hyperemia. N. C. Speer, Osawatomie.
114 Significance of Uterine Hemorrhage in Surgical Diagnosis. H. L. Snyder and L. A. Jacobus, Winfield.

Journal Oklahoma State Medical Association, Muskogee

July

115 Insanity of the Puerperium—Causation. J. W. Duke, Guthrie.
116 Observations in Connection with Appendicitis. L. Long, McAlester.
117 Laryngeal Diphtheria. A. B. Montgomery, Muskogee.
118 Steps Toward the Prevention of Postoperative Exudates. W. E. Dicken, Oklahoma City.
119 Auto-intoxication. L. S. Willour, Atoka.
120 Pneumococcus in the Eye. J. H. Barnes, Enid.
121 Medical Ethics. A. N. Lerskov, Claremore.
122 Chronic Nephritis: Associated Circulatory Changes. A. W. White, Oklahoma City.
123 Elimination of Sectional Lines. J. S. McAllister, Sapulpa.

Western Medical Review, Omaha

July

124 *Chorio-epithelioma. E. C. Henry, Omaha.
125 Principles of Surgery in Emergency Cases. A. C. Stokes, Omaha.
126 Some Critics of the Medical Profession. H. W. Orr, Lincoln.
127 Recent Developments in Medical Education. R. H. Wolcott, Lincoln.

124. **Chorio-epithelioma.**—Henry reports 3 cases. Operation was performed in each case, but owing to advanced disease, one of the patients died. In this case examination showed a uterus only slightly enlarged, and in about normal position. Situated on the anterior and posterior wall of the vault of the vagina were two vascular soft tumors about the size of a pigeon's egg, so located that the opinion was expressed that one was transplanted from the other. The woman was anemic from loss of blood which had been going on for two or three weeks. The primary tumor was found in the body of the uterus, not so large as the two secondary growths. The second patient had a small tumor the size of a large hazelnut in the uterine wall, apparently of malignant structure. The microscope showed it to be chorio-epithelioma. The mucous membrane and the rest of the body appeared to be normal. The patient made a good recovery. The third patient was supposed to be 3 months pregnant when hemorrhage began and she was apparently threatened with a miscarriage. On account of her hemorrhages, albumin in the urine, and rapid heart, the consultaant advised emptying of the uterus. On examination he found a delicate young woman with a pulse of 140, temperature 101, but on putting his hands on the abdomen he found the uterus extending to the umbilicus, vagina filled with blood clots and os patulous. On thoroughly dilating and passing in a Thomas spoon a great quantity of cysts began to come away. Eight weeks later her pulse became rapid again, temperature had gone up to 101 and 102, but a blood count did not show the septic factor and was accordingly ruled out. On curetting the uterus to clear up the diagnosis, such a furious hemorrhage set in that Henry tamponed the uterus. The curetting showed a malignant condition and three days later, after direct transfusion, the uterus was rapidly removed. The tumor had penetrated the walls of the uterus and was just starting into the broad ligament. A year later the woman was in perfect health.

Louisville Monthly Journal of Medicine and Surgery

July

128 The Doctor and Habit-forming Drugs. G. L. Servoss, Fairview, Nev.
129 Medical Milk Commissions and Bovine Tuberculosis. E. C. Schroeder, Bethesda, Md.
130 Angioneurotic Edema. J. E. Hays, Louisville.
131 "Just Mumps." S. J. Meyers, Louisville.

New Mexico Medical Journal, East Las Vegas

July

132 Myxedematous Degeneration of the Chorionic Villi. T. C. Sexton, Las Cruces.
133 What the County Medical Society May do to Prevent the Spread of Tuberculosis. T. W. Laws, Lincoln.
134 Surgery of the Knee Joint. W. G. Hope, Albuquerque.
135 Diagnosis of Pelvic Inflammation. H. A. Ingalls, Roswell.

Vermont Medical Monthly, Burlington

July

136 Cancer of the Uterus. H. C. Tinkham, Burlington.
137 The Physician and Quarantine. J. W. Jackson, Barre.
138 Appendicitis—When to Operate. J. P. Gifford, Randolph.

Therapeutic Gazette, Detroit

July

139 *Difference Between Systolic Pressure in the Arm and in the Leg in Aortic Regurgitation. H. A. Hare, Philadelphia.
140 Plaster of Paris Dressings for Fractures of the Shaft of the Humerus. S. W. Moorhead, Philadelphia.
141 Osteopathy: Does it Offer Anything New? N. S. Yawger, Philadelphia.
142 Placenta Prævia. W. H. Wells, Philadelphia.

139. **Difference between Systolic Pressure in Arm and Leg.**—The results which Hare has obtained in making comparative studies of the blood pressure in the arm and leg of cases of aortic regurgitation have not only confirmed Hill's conclusions that in aortic regurgitation there is a remarkable difference in systolic pressure found in the arm and leg, but have given greater variations than he records, and Hare is prepared to agree with Hill that this extraordinary difference between the systolic pressure in the arm and leg is a pathognomonic sign of aortic incompetence, as it is not present in other valvular lesions. In one of Hare's cases this method of reaching a diagnosis of aortic regurgitation proved most helpful because the ordinary characteristic symptoms of this disease were not well marked. The pulse was somewhat trip-hammer in character but not sufficiently so to be typical. Auscultation revealed a double murmur, very feeble in character, and equally well heard in the mitral and aortic areas. There was a systolic murmur transmitted into the carotid, but the diastolic murmur could not be separated from that of mitral stenosis or Flint's murmur. In this case it was found that the systolic pressure in the arms was 160 and in the legs 260. On taking the patient where there was a good light, Quincke's capillary pulse was found in the skin and in the lips. In another case the arm pressure was 170; the leg pressure 265.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

July 16

1 Epilepsy. W. A. Turner.
2 *Behavior of the Leukocytes in Infection and Immunity. F. E. Andrewes.
3 Aspects of Disease. W. Haward.
4 Administrative Control of Pulmonary Phthisis in Scotland. W. L. Mackenzie.
5 Preventive Measures and the Administrative Control of Tuberculosis. E. W. Hope.
6 Idem. H. Scurfield.
7 Pulmonary Tuberculosis as a Problem of Administration: The Economics of Phthisis. A. K. Chalmers.
8 Recruiting Officer's Notes on the Prevalence of Certain Diseases in Egypt. G. W. G. Hughes.

2. **Leukocytes in Infection and Immunity.**—The observations made by Andrewes on the bone marrow of the rabbit in staphylococcal infections are in complete accord with those of Roger and Josué and of Muir. He employed the intravenous route of infection, and when death occurred rapidly, in 40 hours or less, from acute septicemia, he found no leukoblastic reaction in the marrow, but rather a depletion of the tissue in respect of its neutrophile cells. These are the cases which show a circulatory leukopenia as the end approaches. But in every case in which life has been prolonged for four days or more, he found a neutrophile leukoblastic reaction in the marrow; these are the patients who show during life a persistent, if variable, polynuclear leukocytosis, and after death, local foci of tissue infection. He further found that the longer the animal survives the more pronounced is the neutrophile transformation of the marrow.

From these facts, Andrewes draws two conclusions. It would seem that the "plant" for the production of polynuclear leukocytes present in normal marrow, though it may suffice for a high transitory leukocytosis, is quite inadequate for the maintenance of high leukocytosis. In presence of a grave pyogenic infection steps are at once taken to increase the plant necessary to keep up a due supply. In spite of this the patient or the animal may die, but it is permissible to assume that in every case showing a sustained circulatory leukocytosis this marrow reaction is present and that when, as is commonly the case, recovery occurs, the reaction has been part, and, he thinks, a very important part, of the machinery by which the body has overcome the infection. The prognostic value of the leukocyte count in such human diseases as pneumonia rests on a definite anatomic basis.

The second conclusion is that of the vast importance of the polynuclear leukocyte in the bodily struggle against invasion by the pyogenic cocci. The immediate steps which seem to be taken to provide an increased supply of these cells in presence of such invasion, and the disastrous results which seem to attend failure of the supply, can bear only one interpretation, according to Andrewes. If, in any given bacterial infection, a sustained polynuclear leukocytosis is found during life, and, after death, a neutrophile leukoblastic reaction in the bone marrow, we are fairly entitled to conclude that the defense of the body against the microbe in question, rests largely, perhaps entirely, with the polynuclear leukocytosis, and is probably phagocytic in essence. In a rabbit which had been three times treated intravenously with a vaccine of *Streptococcus fecalis*, and which died for no apparent reason, Andrewes found 315,000 neutrophile cells per cubic millimeter of bone marrow, but in another animal killed after similar treatment the number was only 138,000, and in a third, which died much wasted, the number was 128,100. In an animal killed after two intravenous inoculations with *Micrococcus citreus agilis*, Andrewes found no leukoblastic reaction in the marrow; the neutrophile count was 134,000 per cubic millimeter. He says that the body reacts differently according to the species of bacterium by which it is invaded or against which it is vaccinated.

The clinical facts in relation to different human infective diseases have long suggested this and the more closely the cytologic changes in the blood and the humoral properties of the serum are studied, the more apparent is the fact that the body has several means of defense. There is a great difference between these infections and those due to the pyogenic cocci as regards the changes seen in the blood and in the bone marrow. In experimental rabbits treated with intravenous doses of living and dead colon bacilli, Gärtner's bacillus and *B. typhosus*, Andrewes regularly noted a polynuclear leukocytosis, often a high one, following the anaphylactic leukopenia, but it is a transient affair, and he believes it to be a reaction following the leukopenia, rather than a serious attempt at phagocytic defense. He has never found a leukoblastic reaction in the marrow of animals thus treated. The pyogenic cocci, the members of the colon bacillus group, and the microbes of tubercle and probably also of syphilis, are examples of micro-organisms against which the body seems to defend itself in very different fashion. So far as the polynuclear leukocytes are concerned, Andrewes concludes that these cells are of fundamental importance in defense against the pyogenic cocci, of merely secondary importance in the case of the colon group, while in tubercle and syphilis they seem to play almost no part at all.

British Medical Journal, London

July 16

9 *True Aim of a United Medical Profession and the Handicap of the Trade Union Bogey. L. E. Shaw.
10 Principles of Practice in Relation to Our Patients. R. J. Pye-Smith.
11 Fifty Years of Medical and Surgical Progress and the Part Played in it by Experimental Research. C. H. Allfrey.
12 After Ten Years. W. H. Maidlow.
13 *The Country Practitioner of To-day. S. H. Puckle.
14 Working of the Workmen's Compensation Act of 1906. W. H. B. Brook.
15 Doctor and the Public. S. N. Scott.
16 Future Prospects and Position of the Medical Profession Under Poor Law Commission Reports and Proposals and a Public Medical Service. M. Dewar.

9. **A United Medical Profession.**—Medical education is discussed briefly by Shaw. He suggests the creation by the British Medical Association of a section dealing with the subject of medical education. Here, he says, there would meet together on equal grounds, as members of the profession, the teachers and the taught, and much might be done toward forming a sound opinion on certain principles of education. The taught might bring home to the teachers that teaching is an art that might well be learnt by those who propose to practice it. The medical teachers' faith in examination as a means of education might in such open discussion be advantageously shaken.

13. **The Country Practitioner of To-day.**—Puckle pleads for hearty and unselfish cooperation and combination within our ranks as being the only way of successfully confronting the numerous forces attacking us from without. It is useless, he says, for a few to make a stand against encroachment on their right to a place in the sun at the hands of private patients and public bodies, if within their ranks are to be found those who are willing to accept what others with the true interests of the profession at heart indignantly reject. It is no use presenting a bold front to the common foe if you know that you will probably be stabbed in the back by a so-called friend.

We must live, and, when all is said, the laborer is worthy of his hire. Surely, therefore, in the common interest, it should be possible for neighboring colleagues to put a stop to underselling, by mutually agreeing on a scale of charges suitable to each district, and based on occupation and mileage, and loyally keeping to it. That is one line our combination might take, and though more or less a sordid detail, is none the less an important one. That "union is strength" has been true for all ages, and now that the struggle for existence is daily growing fiercer has passed beyond the region of platitude.

Medical Press and Circular, London

July 6

17 Intracranial Tumors. J. Taylor.
18 Prevention of Mortality after Pelvic Operations. H. Macnaughton-Jones.
19 Treatment of Placenta Prævia. J. Veit.
20 The Difference Between Suggestion and Persuasion—The Importance of the Distinction. T. A. Williams.

July 13

21 Malta Fever. F. M. Sandwith.
22 *Eighty Consecutive Cases of Wasting Infants Fed on Undiluted Citrated Milk. F. Longmead.
23 Treatment of Placenta Prævia (concluded). J. Veit.
24 The Heart in Pulmonary Tuberculosis. J. Hay.

22. Abstracted in THE JOURNAL, July 9, 1910, p. 150.

Clinical Journal, London

July 6

25 Carcinoma of the Rectum Treated by the Abdomino-perineal Method. H. J. Waring.
26 Asthma. A. F. Hertz.

July 13

27 Femoral Ruptures and Their Management. C. B. Lockwood.
28 Pleurisy. W. C. Bosanquet.
29 Lupus Erythematosus. G. Pernet.

Journal of Tropical Medicine and Hygiene, London

July 1

30 *Etiology of Blackwater Fever. P. F. Foran.
31 Diptera of the Congo-Zambesi Watershed. A. Y. Massey.

30. **Blackwater Fever.**—In practically all the cases Foran examined, small active coccus-like bodies or "blood dust" were to be seen. They varied much in number, but in two cases, both young native children, with anemia and enlargement of the spleen, they were present in such extraordinary numbers that, on looking at the fresh film, the plasma seemed to be seething with them. On staining, however, there was no trace of them. Foran found this parasite in many young native children and in a fair number of Europeans. Of the former, some were suffering or had suffered from symptoms closely resembling mild attacks of blackwater; and of the latter, two had had blackwater, and the others were suffering from anemia and irregular fever. Some of the cases appeared to be purely infections; others had undoubtedly a malarial element. In a few young children with acute symptoms, he found remarkably rich infections, 1 in 3 or 1 in 4 of the

red cells invaded. In others, and in the Europeans, the parasite appeared to be latent, with only a few free forms and still fewer intracorpuscular.

Foran suggests that the parasite described is a piroplasma, and that it is the cause of blackwater fever. The intracorpuscular forms closely resemble malaria, and may have been confounded with it. During the attacks of blackwater fever in Europeans the parasites may not appear in the peripheral circulation at all; they may congregate and multiply chiefly in the organs, and there invade the red cells, and these invaded cells, being, perhaps, especially susceptible, may get broken down before reaching the peripheral capillaries. The absence of pigment would render it difficult to demonstrate the presence of the parasite in sections.

Dublin Journal of Medical Science

July

32 Dyspepsia. B. G. A. Moynihan.
33 Responsibilities in the Prevention of Inherited Syphilis. S. Sheill.
34 *The Rotunda Hospital. E. H. Tweedy, B. A. H. Solomons and J. R. Freeland.

34. **Rotunda Hospital.**—During the year 1908-09 there were 2,369 admissions in the maternity wards of the Rotunda Hospital and 2,045 deliveries, which is 15 less than the previous year. Tweedy's cases of eclampsia up to date number 73. This is not only the largest series of cases published by one observer in Ireland, but surpasses the combined number of his two predecessors. A close inspection of former reports will, according to Tweedy, demonstrate the fact, which has been repeatedly noted by other observers, that the incidence of eclampsia is apparently in the nature of an epidemic. This fact is worthy of more than a passing notice, for it is possible that it may serve as a clue to the recognition of the cause of the disease.

In respect to contracted pelves, Tweedy enters a plea for their estimation in inches rather than centimeters. Thus, if starting with 4½ inches as the normal conjugate, one can divide the different contractions into 5 degrees, the first four separated from each other by half inch measurements, the fifth degree comprising all pelves with a true conjugate less than 2¼ inches. This presupposes that a simple flat pelvis is being dealt with; in the presence of general contraction the condition must be considered worse by half an inch. Tweedy also pleads for precision in pelvic measurement in carrying out scientific methods of treatment; that this precision can be obtained only by Skutsch's pelvimeter, the use of which requires considerable practice; that treatment based on the known size of the pelvis will yield better results than that obtained by any other single method. Of other methods, the most important is Professor Muller's, which is of immense utility, but not of universal application. It often fails in obese women, or when the child lies in the third or fourth position with the head extended.

He no longer considers it justifiable in a well appointed hospital to induce premature labor or to perform prophylactic version as a treatment for contraction without complication. These women may be allowed to fall into labor and deliver themselves naturally, provided that the narrowing is not greater than the first or second degree. Delivery by forceps or by enlargement of pelvis should not be delayed when once material or infantile symptoms of distress have appeared, and for these a careful and continuous watch should be kept. In contractions of the third degree the patient's powers should not be wasted by a prolonged second stage, for an enlarging operation will nearly always be necessary for delivery. In the fourth degree of contraction Cesarean section, intraperitoneal or extraperitoneal, is the operation of necessity, if the child is alive, while craniotomy with cleidotomy if necessary, can be relied on for delivery, if the child is dead. In the fifth degree, whether the child is dead or alive, it is best extracted by Cesarean section. Two Cesarean sections were performed during the year.

Labor was induced 11 times—for a dead child 4 times, for albuminuria and edema once, for hydramnios once, for myoma once, and for ante-partum hemorrhage, once. There remain three cases in which labor was induced at full term because of fetal death on former occasions from unexplained causes when labor occurred spontaneously. Live children resulted in these cases. There were 34 cases of post-partum hemorrhage, during the year; 22 cases occurred before the placenta left. In 12 of these the placenta was expressed directly from the uterus; in the other 10 a portion or all of the placenta was adherent necessitating manual removal—three times, of pieces of placenta left after expression; seven times of the whole placenta. Six of the 34 cases followed operative delivery, necessitating an anesthetic. The treatment was as follows: Intrauterine douche followed by a gauze plug, 11 cases; intrauterine douche, 8 cases; repair by catheterization, expression of placenta, massage, manual control, and the administration of ergotin.

Annales de Gynécologie et d'Obstétrique, Paris

June, XXXVII, No. 6, pp. 321-383

35 Twin Pregnancy Complicated with Vesicular Mole. (Grossesse gémellaire compliquée de môle hydatiforme.) A. Herrgott.
36 Drainage of the Abdomen in Gynecology. H. Hartmann and M. Metzger.
37 *Evolution of the Stump of the Cervix after Subtotal Hysterectomy. (Evolution du moignon cervical après l'hystérectomie subtotale.) M. Mériel.

37. **Fate of the Stump after Subtotal Hysterectomy.**—Mériel reviews the various mishaps liable to occur after incomplete hysterectomy. Leucorrhea is the rule for a week or a month afterward, and it may persist to such an extent as to require removal of the stump of the cervix later. The glands in the cervix develop excessive secretion under the influence of the operative traumatism; in rabbits Burkhardt found the stump transformed into a cystic tumor at the end of a few months. This excessive secretion in the cervical glands might be avoided by making the amputation lower down, close to the vagina, thus leaving fewer glands to secrete. The records show further that in from 3 to 6 per cent. of the cases the stumps develop malignant degeneration. Richelot compiled 22 cases in 1905 and the list is much longer now. The cervix may have already contained a cancerous growth at the time of the operation or the supposed fibroma may have been a sarcoma. For these and other reasons Mériel advocates total hysterectomy, not leaving any stump, and presents statistics to show that the mortality of the two technics does not materially differ. The danger of infectious complications by way of the vagina can be obviated, he thinks, by swabbing the vagina with dilute tincture of iodin and curetting the cervix the night before the operation to remove accumulations of mucus. French surgeons in general, he says, seem to be discarding the subtotal for total hysterectomy more and more.

Annales des Maladies des Org. Génito-urinaires, Paris

June 1, XXVIII, No. 11, pp. 961-1056

38 *Bismuth Paste in Urology. (Des injections de pate bismuthée en chirurgie urinaire.) Heitz-Berger and Moreno.
39 Anatomic-Clinical Classification of Ureter Deformities Based on 251 Cases on Record. (Sur les anomalies urétérales.) J. and P. Delmas.

June 15, No. 12, pp. 1057-1152

40 Operative Treatment of Vesicovaginal Fistula with Participation of the Ureter in the Fistula. Rochet and Muller.
41 *Non-Gonorrheal Urethritis. B. Motz.
42 Technic of Section of the Urethral Meatus. J. de Sard.
43 *Indications for Various Operative Methods with Hypertrophy of the Prostate. Bensa.
44 *Case of Rapid Postoperative Recurrences of Traumatic Urethral Stricture. M. Palazzoli.

38. **Bismuth Paste in Urology.**—This communication from the Paris Necker hospital relates the application of Beck's bismuth paste in 10 cases of fistula resulting from removal of a tuberculous kidney and another of a fistula with a simple pyonephrosis with concretions. Nine articles on the use of the bismuth paste have been published in France. The paste used was a mixture of 10 parts bismuth with 10 parts each of paraffin and lanolin and 20 parts of vaselin. The amount injected was only from 5 to 10 or 12 c.c. except in a single case. In other points Beck's technic was followed and although such striking results as he has reported were never observed, yet on the whole the verdict is favorable. A cure was attained in some cases in which the process had proved rebellious to all other measures. The suppuration is materially reduced by the paste which renders it unnecessary to change the dressing as often as otherwise.

41. **Non-Gonorrheal Urethritis.**—Motz classifies non-gonorrheal urethritis aside from the venereal form as of traumatic, clinical or spontaneous origin or consecutive to descending infection of kidney or bladder, and he then discusses the therapeutic indications for these five types when the trouble is recent. Some do better with mild disinfectants, while the primary venereal urethritis may require stronger measures and the urethritis due to the presence in the urine of certain irritating salts or toxins demands general treatment before instituting local measures.

43. **Indications for Operative Treatment of Hypertrophy of the Prostate.**—Bensa determines by cystoscopy (1) the shape of the hypertrophy, (2) its consistency by palpation through the rectum and its nature in general by the hematuria and the various secretions, and (3) the state of the general health, especially that of the lungs, heart and kidneys, testing for urea, albumin and sugar. Total transvesical prostatectomy he reserves for fibroadenomatous hypertrophy of the lateral lobes in younger and only slightly infected patients, and it is done in two sittings with a temporarily infected patient. Partial transvesical prostatectomy is applicable for a pedunculated middle lobe. Perineal prostatectomy is preferable when there is suppuration—on account of the facility of drainage, and possibly for the lower hypertrophied lobes. The Bottini operation may be applied for soft hypertrophy of the lateral lobes, which it is difficult or impossible to enucleate, for "bar" hypertrophy of the middle lobe and stenosis of the neck of the bladder; also when the patient refuses an abdominal operation or is too weak for any other technic. This Bottini operation removes the part of the prostate obstructing the posterior urethra and neck of the bladder. The results are certain, permitting almost without any danger the removal of the obstacle to urination. Suprapubic cystotomy is advised in the hemorrhagic forms or when there is infection of long standing; it should be supplemented by deep cauterization of the protruding lobes or bands in the neck of the bladder. In some cases the cystotomy alone is all that is indicated to relieve and soothe the bladder by diverting the urine, and this treatment thus forms the last resort when all the ramifications of the urinary apparatus are distended and infected.

44. **Recurring Stricture.**—Palazzoli emphasizes the fact that a stricture cannot be regarded as cured until the underlying cause has been definitely removed. In the case reported the inflammation was the result of injury from a concrement and the stricture constantly recurred after dilatation. This persisting inflammation can generally be detected and cured only by palpation and massage over a large bougie in the urethra, possibly supplemented with electrolysis.

Archives des Maladies de l'App. Digestif, Paris

June, IV, No. 6, pp. 305-368

45 *Six Cases of *Trichocephalus dispar* Enteritis. A. Cade and C. Garin.
46 Mechanism of Action of Secretory Stimulants Introduced by Way of the Rectum in Dogs with Pawlow Fistula. Wasserthal.
47 Evacuation from the Stomach of Cold Mineral Waters Ingested Fasting. A. Monsseaux.

45. **Enteritis Due to the Trichocephalus Dispar.**—Cade and Garin's patients were between 25 and 40 years old and the syndrome varied in each case but the diarrheic form with invisible hemorrhages was most common, persisting for months and years. In some cases periods of constipation intervened, and in some the tenesmus and colics simulated dysentery, or the false membranes in the stools suggested mucomembranous colitis. The trichocephalus locates by preference in the right iliac fossa, and the symptoms may include a spasm of the bowel suggesting a pathologic induration in this part of the intestine. In some of the patients gastric symptoms predominated, the clinical picture simulating then nervous or neurasthenic dyspepsia. Headache, dizziness and weakness were constant symptoms and a temperature at times up to 38 C. or still higher for a few days was sometimes noted. The discovery of occult blood in the stool and of eggs of the helminth are important aids in differentiating, as also the lingering nature of the symptoms and their flaring up especially in summer. In one of the cases cited the diagnosis had long been tuberculous enteritis but the occult blood and the trichocephalus in the stool and the improvement under thymol confirmed the assumption of helminthiasis. They gave thymol in 15 grain doses three or four times a day for three or four days, following with a saline purgative, the patient abstaining in the meanwhile from alcohol, wine and oil. This course was repeated after an interval of a few days. It does not always abolish the helminths entirely, even with several courses, but great improvement in the condition was always manifest and no untoward by-effects were noted in any instance.

Archives de Médecine des Enfants, Paris

July, XIII, No. 7, pp. 481-560

48 *The Heart in Acute Articular Rheumatism in Children. P. Nobécourt.
49 Anaphylaxis for Cow's Milk in Infants. (Anaphylaxie pour le lait de vache chez les nourrissons.) Barbier.
50 *Inflammatory Nature of Stenosis Ascribed to Muscular Hypertrophy of the Pylorus in Infants. E. Weill and Péhu.
51 *Epidemic of Whooping-Cough with Gastro-intestinal Complications. (Considérations sur quelques complications d'une epidémie de coqueluche et sa disparition brusque à la suite d'une cause météorologique.) N. B. Nicoletopoulos.

48. **The Heart in Acute Articular Rheumatism in Children.**—Nobécourt advises keeping a child in bed and giving sodium salicylate even in the very mildest cases of acute rheumatism, enforcing bed rest with especial insistence with any signs of complications on the part of the heart; if the myocardium is involved even the slightest movement may bring on syncope. He also advises an exclusive milk diet or milk or vegetable diet, keeping the bowel function regular with enemas and laxatives and applying sinapisms and dry or wet cupping over the heart if there is much pain. In this case and also if the myocardium shows signs of weakness, he keeps cold wet compresses or an ice bag over the heart. The majority of physicians keep up the salicylate even with myocardium trouble; the drug does not seem to have the depressing action that used to be feared from it, and it may have a favorable action on the serosa. Weill tried subcutaneous injections of sodium salicylate in parenchymatous myocarditis but without apparent effect. On account of the analogies between the virus of the disease and lactic acid, alkalines have been given in treatment by some and they do not seem to do harm, to say the least. After subsidence of the acute phase, the patient should be kept under supervision and exercise, arsenic, iron and iodids and a course of mineral waters ordered as indicated. He cites a number of cases from his experience to show the various types of heart trouble liable to be encountered, including two cases of functional mitral insufficiency and some cases in which the endocarditis, pericarditis or myocarditis occurred with attenuated rheumatism, even without joint lesions or fever. P. Weill has encountered cases of actual visceral rheumatism with no joint symptoms.

50. **Inflammatory Nature of Stenosis of the Pylorus in Newly-Born Infants.**—Weill and Péhu present data to sustain the assertion that the stenosis is sometimes merely the result of a hyperplasia of the pylorus musculature secondary to an inflammatory process in the stomach. The inflammation may be of greater or less extent and intensity which explains the variability of the symptoms. The gastritis may be clinically cured by medical measures and these should be given a thorough trial and time to act before considering operative treatment.

51. **Whooping-Cough.**—This communication from Greece states that during an epidemic of whooping-cough gastro-intestinal symptoms suggesting typhoid were common and proved fatal in a number of cases. The epidemic was in summer but a sudden change in the weather, bringing a cold northeaster, seemed to blow the whole epidemic away. The local doctors, meeting two days later, all had wonderful tales to tell of the great efficacy of the special drug which each had happened to be prescribing for his little whooping-cough patients the day the weather turned. On comparing notes, however, they came to the conclusion that some general factor must have been responsible for the benefit derived on that and the following day in all the cases from the various drugs that had been used. And this factor seemed to have been the sudden change in the weather.

Bulletin de l'Académie de Médecine, Paris

June 28, LXXIV, No. 25, pp. 651-674

52 Arsenical Insecticides in Agriculture. Duguet and Committee.
53 *The Dog as Typhoid-Bacillus Carrier. (Le chien, porteur de bacilles d'Eberth.) J. Courmont.
54 *Differential Radiodiagnosis of Gall-stones and Urinary Calculi. A. Béclère.

53. **Dogs as Typhoid-Bacilli Carriers.**—Courmont found that 10 of the 12 dogs tested eliminated typhoid bacilli regularly in their stool for four or five days after eating a single meal of food experimentally contaminated with typhoid bacilli. The bacilli seemed merely to pass through the dog's body without causing lesions or symptoms, but it is evident that during the five days following ingestion of typhoid material the dog is liable to be a dangerous bacillus carrier. In the two cases with negative findings in the stool the bacilli proved afterward to have been derived from cases of Malta fever.

54. **Radiodiagnosis of Gall-Stones and Urinary Concrements.**—In the case reported by Béclère the symptoms indicated kidney stone and radioscopy showed a large concrement in the right side. Its shadow was 40 mm. in diameter when the tube was placed above the patient but the shadow was only 28 mm. in diameter when the tube was placed beneath, the patient's position and the distance of the tube the same for each exposure. This difference in the size of the diameter with the upward and downward exposures indicated that the stone must have been much nearer the front than the back of the body, suggesting that it was in the gall-bladder rather than in the kidney, although there had been no signs of anything wrong with the biliary apparatus. The hematuria was still unexplained until the tube was applied to the left side also, when a small kidney stone was discovered.

Grèce Médicale, Syra, Greece

II, Nos. 7-8, pp. 17-20. Last indexed May 14, p. 1655

55 *Malarial Hemoglobinuric Fever Should Not be Treated with Quinin. (Quelques mots sur l'etiologie et la pathogénie de la fièvre bilieuse hémosphérinurique; devons-nous la traiter par la quinine?) J. Cardamatis.

Nos. 9-10, pp. 21-24

56 Influenza and Dengue. (Grippe et fièvre dengue.) P. N. Divaris.

55. **Should Quinin be Given in Hemoglobinuric Fever?**—Cardamatis has been collecting the experiences of physicians throughout Greece in regard to hemoglobinuric fever and its treatment with quinin and states that in 2,481 cases, including 55 from his own practice, the mortality was 24.42 per cent. in the 1,347 cases in which treatment was with quinin, but only 7.32 per cent. of the patients died in the 1,134 cases in which no quinin was given. This list includes the experiences of 105 Greek practitioners, in as many different foci of malaria, and the conclusions from the total statistics confirm what Cardamatis has been teaching since 1893, namely, that complete abstention from quinin is necessary in treatment of bilious hemoglobinuric fever. The hemoglobinuria is stated to have followed eating green beans or their flowers in a number of cases, and Kouzis has isolated from fresh beans a special ferment which he calls "cyamose," but Cardamatis thinks that the trouble is more likely to be explained by some minute mushroom growth on the raw beans, the mushrooms containing some poisonous element. One of the Greek physicians reported a case brought on apparently by emotional stress, in another by the odor of resin, drinking a glass of an infusion of quassia or decoction of absinthe, or, in one child of 8, by eating a very large number of figs. In Ghiompres' case fatal hemoglobinuria came on after eating a dish of snails. Blood from the hemoglobinuric patients failed to show any evidence of a special hemolytic action or a destructive action on the malarial parasite.

Lyon Médical, Lyons

June 12, XLII, No. 25, pp. 1237-1280

57 *Absorption of Ultraviolet Rays by Transparent and Colorless Substances and Practical Consequences for Hygiene. (Translucidité et opacité ultra-violettes par les substances transparentes et incolores à la lumière. Application aux liquides de l'organisme.) H. Bordier.

June 26, No. 26, pp. 1281-1324

58 Histogenesis of Syphilitic Gumma in the Liver. L. Bériel and C. Laurent.

July 3, No. 27, pp. 1325-1376

59 *Intestinal Dyspepsia. A. Cade. Commenced in No. 26.

57. **Absorption of Ultraviolet Rays by Impurities in Air, Etc.**—Bordier reports extensive research on the absorption of the chemical rays by various substances, organic fluids, transparent solutions, etc., and draws some practical conclusions. The crystalline lens and cornea become fluorescent under the action of the rays, showing transformation of energy, and this transformation of energy cannot occur, he believes, without some physiologic transformation which in time may become pathologic. He advises careful exclusion of the ultraviolet rays in all sources of illumination, kerosene lamps and incandescent lights being far preferable in this respect to an arc light, Auer, Nernst or mercury light. His experiments further showed that the impurities in the air of cities absorb the ultraviolet rays so that they lose their bactericidal action on the air. The composition of city air renders it an impenetrable barrier for the ultraviolet rays unless high winds keep the air constantly replenished. It is not necessary, however, he adds, to send persons to a great distance to get pure air—a few miles beyond the city limits the ultraviolet rays display their full powers again. This should be borne in mind, he suggests, in selecting a site for a hospital.

59. **Intestinal Dyspepsia.**—Cade applies this term to habitual functional disturbances in the intestinal digestive process, independent of any lesion in the bowel. He discusses in turn the clinical manifestations, causes, effects elsewhere, diagnosis, prognosis and therapeutic indications. The most common form is that due to lack of sufficient gastric juice, and this indicates treatment with acids. With pancreatic insufficiency the acids should be supplemented with the ferments and lime salts. With a lack of sufficient bile, an extract of bile can be given, with sodium and magnesium salts. In all the forms special attention should be paid to the always predominant nervous element. A well conducted course at a spa is often particularly useful in permanently curing intestinal dyspepsia, selecting the waters best adapted for the patients with the diarrheic or constipated form.

Obstétrique, Paris

June, III, N. S., No. 6, pp. 561-608

60 *Diagnosis and Importance of the Loss of Lime During Pregnancy. (Décalcification gravidique.) Marquis.
61 Changes of Presentation in Course of Labor. (Relations étiologiques entre les présentations du siège décomplété mode des pieds et les mutations polaires de présentations au cours du travail.) J. Rouvier.
62 Jonges' Position to Enlarge the Outlet of the Pelvis During Labor. (L'agrandissement du diamètre bis-ischiatique.) A. H. M. J. Van Rooy.

60. **Loss of Lime During Pregnancy and Its Clinical Importance.**—Marquis states that there is evidently a physiologic loss of lime during pregnancy, manifested by the looseness of the pelvic articulations; if it reaches a pathologic degree there is pain in the symphyses, and this he regards as the first stage of osteomalacia, believing that this degree of osteomalacia is quite common; in the second phase, there is considerable pain in the bones and walking is difficult, but the pelvis is not deformed. The third stage, in which the pelvis is actually deformed, is the only form of the affection recognized by other authors to date, and this is why the prognosis of osteomalacia is generally considered so grave. Examination of the proportion of lime in the blood is a reliable method of determining the condition in regard to lime waste. In two typical cases described in detail, the blood contained 0.12 per thousand lime in one and 0.162 in the other, instead of the normal average of 0.052 for the pregnant woman. The proportion of lime in the blood has always paralleled the severity of the osteomalacic disturbances in his clinical experience. The disturbance in osteomalacia is a decalcification while in rachitis it is more impossibility of recalcification. The decalcification in pregnancy is probably due to some disturbance in ovarian, suprarenal or similar functioning, with a predisposition afforded by frequently repeated pregnancies and deficiency of lime in the food.

Presse Médicale, Paris

July 6, XVIII, No. 54, pp. 513-520

63 *So-called Primary Neuralgia of the Rectum E. Parmentier and J. Foucaud.

63. **Neuralgia of the Rectum.**—In this article two typical cases are reported of primary rectal neuralgia. One was a butcher of 36 with intense paroxysmal pain in the region of the rectum, the other was a woman of 46. In her case the pain came on soon after eating and lasted for nearly three hours. In both cases there had been a preceding enterocolitis. Both patients were much benefited by a general brief tepid douche followed by local hot douches to the region. The application of heat in this way cured the first patient completely and the second is nearly cured and there has been no recurrence in either case for more than a year. The history, symptomatology and the diagnosis by exclusion are discussed and the benefit from local heat emphasized.

Revue de Gynécologie, Paris

June, XIV, No. 6, pp. 513-624

64 Atresia of the Hymen. L. Aubert.
65 Kraurosis and Leukoplasia of the Vulva. F. Jayle and X. Bender.
66 Tumors of Wolffian Origin in the Round Ligament. M. Chevassu.
67 Rectoscopy: History, Technic, Indications and Findings. G. Luys.

Revue de Médecine, Paris

June, XXX, No. 6, pp. 449-528

68 Comparative Study of the Reactions of the Islands of Langerhans in the Pancreas and of Lymph Glands and Spleen in Experimental Tuberculosis. M. Salomon and P. Halbron.
69 Mediastinal Pleurisy. E. Devic and P. Savy.
70 Acute Poliomyelitis. IV. E. Job and J. Froment.

Semaine Médicale, Paris

July 13, XXX, No. 28, pp. 325-336

71 *The Relics of Tubal Abortion and Their Diagnosis. (Les reliquats de l'avortement tubaire.) F. Lejars.

71. **Retrospective Diagnosis of Tubal Abortion.**—Lejars regards a prolonged continuous blood stained uterine discharge as an important aid in differentiating tubal abortion; even if the proportion of blood is small its persistence for two up to five weeks is characteristic and absence of blood in the vaginal discharge is strong evidence against a recent hematocele. The slight hemorrhage seems to persist longer after tubal abortion than after rupture. Incomplete expulsion of the ovum is also liable to keep up the hemorrhagic discharge, and he relates some instances of such retention of the placenta with the tube open and of total retention with the tube closed. The small encapsulated collection of blood may be taken for a fibroma and the resulting disturbances for inflammatory processes in the adnexa or in the uterus. Certain cases of tubal abortion have been diagnosed as a hemorrhagic metritis and the uterus was curetted when this organ was sound and the trouble was in the tube beyond the reach of the curette. It might possibly have been detected if the adnexa had been systematically palpated. The tubal abortion may not have been recognized as such and the discovery of the small encysted collection of blood in the pelvis years later may be a puzzling find.

Archiv für klinische Chirurgie, Berlin

XCII, No. 1, pp. 1-263. Last indexed April 16, p. 1343, and August 6, p. 539

72 Roentgen Carcinoma and its Origin. F. Rosenbach.
73 Results of Traumatic Severing of the Achilles Tendon. (Zur Kenntniss des Pes calcaneus traumaticus.) S. Peltesohn.
74 Plastic Operation for Intrathoracic Fistula into Lower Trachea. (Intrathoracische Luftfistel seltener Aetiologie und ihre plastische Deckung durch einen Hautperiostknochenlappen.) M. Hofmann.
75 *Technic for Alcohol Injections in Trigeminal Neuralgia. (Die Technik der Injectionen in die Trigeminusstämme und in das Ganglion Gasseri.) H. K. Offerhaus.
76 The Accessory Ligaments of the Shoulder in Connection with Dislocation. (Die Hemmungsbänder des Schultergelenks und ihre Bedeutung für die Schulterluxationen.) E. Delorme.
77 Congenital Urethra Diverticulum. (Fall von angeborenem Harnröhrendivertikel.) S. Timofeew.
78 Retroperitoneal Dermoid Cysts. F. Ehler.
79 Single Cysts of the Long Bones. (Die solitären Cysten der langen Röhrenknochen.) W. Röpke.
80 Case of Spontaneous Exclusion of Loop of Small Intestine. (Fall von spontaner Ausschaltung einer Dünndarmschlinge, nebst Bemerkungen zur Frage des Ileus.) P. Esau.
81 Treatment of Complications of Gastric Ulcer. (Behandlung der Complicationen des runden Magengeschwürs.) I. K. Spiscarny.
82 Antiferment Treatment of Suppurative Processes. E. Hesse.
83 Experiences with Excision and Resection of Gastric Ulcers; 24 Cases. (Magengeschwüren.) E. Payr.
84 Varices in Abdominal Wall. (Ueber Phlebectasien der vorderen Bauchwand.) E. Bibergeil.
85 Recurring Volvulus of Small Intestine. (Fall von Wiederholung des Dünndarm-Volvulus.) W. Philipowicz.

75. **Technic for Injections into the Trigeminal Nerve.**—Offerhaus has been working out a method for certain and safe localization of the nerve for deep injections of alcohol, etc., in treatment of chronic trigeminal neuralgia. He reviews the history of the method and lauds its efficiency. The ancient Greeks knew that the dimensions of the human body are proportional to each other so that, given certain measurements, the others can be estimated from them, and he has found that this applies also to the skull bones and to their various parts. Comparative measurements of 60 European skulls in the Groningen museum of anatomy showed that the distance between the oval foramens is always equal to the distance between the alveolar processes measured beyond the last molars at the point where the palate process joins the lower jaw. The distance between these points is readily determined by measuring in the mouth. Eleven instructive illustrations and diagrams show the conditions and the various laws he has worked out from this material and his experience with deep injections in 8 cases. The laws of practical importance are that the distance between the inner side of the alveolar processes back of or beside the last molars, is equal to the distance between the round foramens. The distance between the outer side of the alveolar processes measured beyond the last molars is equal to the distance between the oval foramens; it is also equal to the distance between the outer sides of the maxillary tuberosities. The distance between the oval foramens and the outer side of the maxillary tuberosity is equal also to the distance between the round foramen and the outer side of the malar bone. In practice, therefore, it is necessary to know only the distance between the inner side of the alveolar processes and the distance between the maxillary tuberosities to know the point where the needle inserted will hit the third branch of the trigeminal nerve; if these measurements are respectively 5 cm. and 14 cm. then the oval foramen lies at a depth of $\frac{14-5}{2} = 4.5$ cm.

The same principle applies also to the second branch and the round foramens. In order to determine with precision the exact direction to give the needle, he has devised graduated calipers with an adjustable rod in the end of each branch. The calipers are applied to the maxillary tuberosities and the rods are adjusted so that they project in a single straight line and the needle is introduced along this imaginary line running between the tuberosities. The needle first pierces the parotid gland, then passes in front of the maxillary articulation, through the rear wall of the masseter muscle and through the external pterygoid, and then reaches the third branch of the trigeminal nerve just before it divides. No large vessels are encountered on the way. To reach the second branch, the distance between the zygomas is determined in the same way as also the imaginary line connecting them; the calipers are applied to the middle of the malar bone about 1.5 cm. behind the point where the ascending and horizontal portions meet. The needle is introduced just above the zygomatous process, or, if it is desired to hit the second branch where it emerges from the round foramen, the needle is introduced just below it, the point of the needle directed a little upward and backward. The above technic locates the nerve within a few millimeters unless there is marked asymmetry of the skull, Offerhaus declares, and the simple method of deep injections is thus rendered accessible to all. He advises injecting a little alcohol into the peripheral foramen at first, and then, if this does not cure, making a deep injection. General anesthesia is unnecessary and actually detrimental. He adds that the entire domain of the second and third branches of the trigeminal nerve can be readily and effectually anesthetized by a single injection of a small amount of an anesthetic to reach the nerve as it passes out from the round or oval foramen.

Beiträge zur Klinik der Tuberkulose, Würzburg

XVI, No. 4, pp. 327-417. Last indexed July 30, p. 442

86 *Treatment of Tuberculosis According to Dr. Carl Spengler of Davos: I. K. (Tuberkulose-Therapie nach Dr. Carl Spengler mit besonderer Berücksichtigung des I. K.). R. Benöhr.

87 Idem. (Anwendung und Wirkungsweise des I. K. an der Hand von Krankengeschichten aus der Carl Spenglerschen Praxis.) R. Benöhr and A. Hoffmann.
88 Idem. (Behandlung der Tuberkulose mit I. K. in der Landpraxis.) W. Pumr.
89 Idem. (Erfolgreiche Anwendungsweise des "I. K." Spengler bei der Behandlung der Tuberkulose.) Westphal.

86. **Treatment of Tuberculosis.**—Benöhr states that Spengler regards the red corpuscles as the main source of production and storage of the immune bodies, and he obtains his I.K. (Immun-Körper), to serve as a tuberculin, from the dissolved corpuscles of artificially immunized sheep and rabbits. Benöhr tabulates the details of 130 cases of tuberculosis in which this treatment was applied at Davos, and Pumr of 46 other cases while Westphal relates his experiences with it at Hannover. The conclusions of the writers are all favorable as to its efficiency. Spengler has made a special study for nearly twenty years of the combination of tuberculosis and syphilis. An inherited syphilitic taint is found underlying the tuberculosis in more cases than is generally recognized. Syphilitic involvement of the lung is comparatively frequent although it is difficult to produce anatomic proof. The syphilitic lung is inclined to be "fleshy," hypertrophied, with a tendency to cirrhosis in time. A characteristic auscultation finding over these "fleshy" lungs is a murmur (Rauschen), more frequent over the middle and lower lobes than the upper, corresponding to the more usual location of syphilitic changes in the lung. This murmur is generally restricted to the terminal phase of inspiration and the beginning phase of expiration. With tuberculosis combined with syphilis the larynx is frequently involved and this is often the primary process. The bronchi also are notably involved, especially with acquired syphilis. Auscultation reveals this syphilitic bronchitis by the bronchial symptoms and a rattling or a spring sound. Another sign is the lack of proportion between the apparently extensive pulmonary process and the well nourished, healthy aspect of the patient. The syphilitic-tuberculous sputum is large in amount, mucous or mucopurulent, and the microscope shows numerous cellular elements with fragmented nuclei in contrast to the sharp outlines of the cell nuclei under other conditions. Tubercle bacilli are few and far between, even with extensive processes in the lung. Sometimes spirochetes can be discovered in the sputum. Vigorous mercurial treatment is contraindicated in the tuberculous, and only mild measures can be used. Many obstinate cases of pulmonary tuberculosis yield to tentative antisyphilitic measures; the outlook is more promising in the young and in the stage of inflammatory hypertrophy. In one such case a man had had pulmonary symptoms for 26 years; the cough had increased during the last six months and there was fever and a few tubercle bacilli were found. He has healthy children and no history of syphilis, but 20 drops of tincture of iodin twice a day in milk banished nearly all the râles in less than two weeks and by the end of two months the temperature was normal, the expectoration and râles had ceased and the patient had gained many pounds in weight.

Berliner klinische Wochenschrift

June 27, XLVII, No. 26, pp. 1213-1260

90. *Sudden Total Amaurosis in Woman of 71 and Man of 50. (Zwei bemerkenswerte Fälle von plötzlicher doppelseitiger Erblindung im höheren Lebensalter.) W. Uhthoff.
91 *Tuberculin Treatment of Kidney Tuberculosis. H. Wildbolz.
92 Cystic Kidneys and Kidney Cysts. A. Renner.
93 Case of Habitual Torsion of the Large Intestine. (Zur Kasuistik der habituellen Dickdarmtorsion.) A. Augspach.
94 Anguillula Intestinalis in Miners. A. Springfeld.
95 Tuberculin Test in Dairies. (Zur Frage der Tuberkulinprüfung der Kindermilchkühe.) C. Bolle.
96 Idem. B. Möller.
97 *Treatment of Chronic Lead Poisoning with Fixation Abscesses. (Zur Behandlung des chronischen Saturnismus mit Fixationabscessen.) V. Hinze.
98 Warning for Caution in Application of Wassermann Syphilis Reaction in Diagnosis. A. Freudenberg.

90. **Sudden Blindness in the Elderly.**—Uhthoff reports two cases of sudden bilateral blindness which he ascribes to a peripheral, basal affection of the optic nerve, basing his diagnosis on the exclusion of all other probable causes. In the first case nothing pathologic could be found in the woman of 71 except a tendency to arteriosclerosis. The only plausible explanation seems to be bleeding from an artery at the base of the brain, the blood entering the sheath of the optic nerve, or compressing it after encapsulation of the minute hemorrhage. The cerebrospinal fluid was limpid on lumbar puncture five weeks later. In the second case there were signs of a preceding tendency to neuritic atrophy of the optic nerve although the patient, a man of 59, had not been conscious of any disturbance; a basal hemorrhage had probably occurred also in this case.

91. **Tuberculin Treatment of Kidney Tuberculosis.**—Wildbolz states that microscopic examination of the kidneys in 5 cases after prolonged courses of tuberculin treatment failed to reveal any tendency to healing of the tuberculous processes in the kidney under the influence of the tuberculin. In 4 of the patients the tuberculosis was restricted to one kidney and the conditions were unusually favorable for a cure if the tuberculin treatment had been able to effect such, but in every instance the disease progressed and nephrectomy became necessary in time. The general health persisted good and the tuberculous process had not progressed to the cheesy phase or cavity formation notwithstanding its long duration, up to 8 years in one case. There were no evidences in any of the kidneys of an injurious action from the tuberculin. He also reports 3 cases in which the tuberculous process in the kidney apparently healed under conservative measures without tuberculin, and the patients were in good health for 3, 2 and 9 years before the symptoms flared up again and the long advised nephrectomy was permitted. Such spontaneous remissions and apparent clinical cures impose extra caution in estimating the effect of tuberculin. His conclusions from these and other data cited are that tuberculin has a general favorable, toxin-binding influence in case of kidney tuberculosis but no appreciable local action on the lesions. In his 31 cases the general health almost invariably improved under the tuberculin but no patient was cured or even relieved from his local disturbances. Extreme caution is necessary if tuberculin is given in advanced kidney tuberculosis on account of the extensive absorption of the toxins of the tubercle bacilli in the kidney process, flooding the system with tuberculin from within. In early cases of unilateral kidney tuberculosis, a trial of tuberculin is justified, especially in the young. By this means it may be possible to benefit in some cases, and the constant oversight required with tuberculin treatment enables a prompt decision as to when nephrectomy should be advised or enforced, while the findings in the kidney will throw light on the actual action of tuberculin in such cases. We must ask more of the tuberculin with kidney than with pulmonary lesions, as in nephrectomy we have a means of actual definite cure, while there is no such resource with pulmonary lesions.

97. **Fixation Abscess in Treatment of Lead Poisoning.**—Hinze reports a case in which unmistakable benefit was derived from a fixation abscess made in the thigh by subcutaneous injection of 1 c.c. of turpentine. Although the patient in this case had had nothing to do with lead for ten months, yet 0.089 per cent. of metallic lead was recovered in 1.528 gm. of pus from the abscess. The patient in this case, a type-founder of 41, suffered also from tuberculosis, alcoholism and arteriosclerosis and there were signs of interstitial nephritis, but he bore the fixation abscess without apparent harm. At autopsy a few months later only traces of lead could be found in the liver and none in the bone marrow. J. Carles reported last year 2 clinical cases and considerable experimental research, all confirming the action of the harmless fixation abscesses in aiding in the elimination of lead in cases of industrial lead poisoning. He calls it "leukocyte venesection."

Deutsche medizinische Wochenschrift, Berlin

July 7, XXXVI, No. 27, pp. 1257-1304

99 Pathology and Treatment of Hydrophobia. (Tollwut.) O. Lentz.
100 The Experimental Basis for the Use of the New Arsenical Preparations in Spirochete Diseases, and Particularly in Syphilis. P. Uhlenhuth and P. Mulzer.
101 *Secondary Infection with Tubercle Bacilli and Their Saprophytic Growth. C. Hart.
102 Radiography of the Appendix. (Die radiographische Darstellung des Wurmfortsatzes.) R. Liertz.
103 Gelatin and Coagulation of the Blood. (Gelatine und Blutgerinnung.) H. Grau.
104 Advantages of Early Operation for Appendicitis. H. Kümmell. Commenced in No. 26.

105 *Treatment of Flat-Foot. (Eine auf einem neuen Prinzip begründete Plattfusseinlage.) O. Momburg.
106 New Histologic Findings with Glioma of the Retina. M. Peschel.
107 Oxygenated Mud Baths. (Sauerstoffmoorbäder.) M. Wassermann.
108 *Beethoven's Deafness. (Ludwig van Beethoven's Gehörleiden.) L. Jacobsohn.
109 *Treatment of Deformities of the Feet. (Weitere Beiträge zur Behandlung von Fussdeformitäten.) J. Fränkel.

101. **Secondary Infection with Tubercle Bacilli and Their Saprophytic Growth.**—Hart is a prosector and he protests against the assumption that children are infected with tuberculosis as generally as seems to be the case from the numerous positive responses to the Pirquet tuberculin skin test. Again and again in his experience the autopsies of children giving a positive Pirquet reaction during life have failed to reveal the slightest tuberculous lesion under the microscope. He thinks it is far more likely that tubercle bacilli may be located somewhere in the body, leading a saprophytic existence and causing no tissue reactions, but at the same time absorption of their toxins from their saprophytic growth may lead to the production of antibodies which in turn would give a positive reaction to the ultrasensitive Pirquet test although in reality there are no tuberculous lesions. To sustain these views he reports a demonstrative case in which a colony of tubercle bacilli were found living a saprophytic existence without trace of microscopic changes in the tissues in which the colony of bacilli were ensconced. The cadaver was that of a locksmith of 51, with no tuberculous antecedents in the family. He had been coughing for several years and lately had become much emaciated. The physical findings in the right middle lobe suggested tuberculosis; there had been hemoptysis on one occasion, and after repeated negative findings a few tubercle bacilli had at last been detected in the sputum. The ocular tuberculin test with 2 per cent. solution of tuberculin was negative, weakly positive with a 4 per cent. solution, and the skin test gave weak positive findings. The clinical diagnosis was thus pulmonary tuberculosis and right empyema; autopsy disclosed, however, a primary cancer in the bronchi and no tuberculous focus in the lung or elsewhere, but a small colony of tubercle bacilli were found in the thick pus in the enlarged bronchus while the pus in the lung contained merely streptococci. He interprets the case as one of secondary colonization of inhaled tubercle bacilli in the stagnating secretion of the compressed bronchi, where they led a saprophytic existence, but generated toxins which were absorbed in sufficient amounts to account for the reactions to the tuberculin tests.

105. **Treatment of Flat-Foot.**—Momburg remarks that it is absurd to attempt to correct a twisted and sunken arch only by sustaining the center of the arch; by pushing the bases of the arch into their proper place the central arch will resume its proper position. This is the basis for his flat-foot insole. He leaves the arch alone but strives to bring the heel into pronounced supination while the bones in the ball of the foot are brought into a plane perpendicular to the axis of the leg. The heel and the heads of the metatarsal bones are the supports for the arch of the foot, and by bringing them into their proper place the arch reassumes its normal shape. He accomplishes this with a rubber, wedge-shaped insole, the slant inward and forward, the piece fitting under the heel and stopping just short of the ball of the foot. A spring below and a leather sole above hold the parts in place; the supports of the foot are forced into the proper position and the arch takes care of itself. He states that this insole has freed many patients from long rebellious flat-foot disturbances. This simple and cheap insole can be worn with any shoe with a broad low heel.

108. **Beethoven's Deafness.**—The first signs of Beethoven's deafness were noticed about the age of 25 and he tried one method of treatment after another, the deafness growing constantly worse and the subjective sounds—the *Sausen und Brausen*—tormenting him, as he says, like a demon day and night. He turned from one physician to another and finally to quacks, and various ear trumpets were devised to help him but without benefit, some by Mälzel, inventor of the metronome. He succumbed finally, at the age of 57, to cirrhosis of the liver. The Eustachian tubes were found at autopsy much thickened, with cicatricial depressions near the mouths, the auditory nerves shriveled and without medulla, and general signs of otosclerosis. The convolutions of the brain were twice as deep and numerous as in the average brain, the skull very thick. The loss first of the high tones shows that the deafness was primarily of nervous origin while the subjective sounds revealed the otosclerosis which the autopsy findings confirmed. Beethoven had smallpox in youth and a typhoid affection a few years before his deafness; the typhoid, Jacobsohn remarks, may have been responsible both for the otosclerosis and the bowel trouble from which he suffered. There was nothing to suggest syphilis, inherited or acquired, except possibly a circumscribed thickening of the right parietal bone of the skull which, according to the pictures, resembles those observed on a basis of syphilis. The autopsy report was signed by J. Wagner, Vienna, 1827.

109. **Treatment of Deformities of the Feet.**—Before correcting the deformities, Fränkel loosens up the foot by a preliminary superheated air bath in the glass boot. He gives illustrations of various devices for correction of flat-foot and club-foot and the technic for treatment of club-foot after it has been once corrected.

Medizinische Klinik, Berlin

July 10, VI, No. 28, pp. 1083-1122

110 *Pseudoputrid Processes in the Air Passages. H. Eichhorst.
111 Natural Processes for Regulation of the Temperature of the Body in the Bath. (Wärmeregulation im Bade.) A. Strasser.
112 *The Reaction in the Focus with the Subcutaneous Tuberculin Test and its Importance for the Early Diagnosis of Apical Pulmonary Tuberculosis. (Herdreaktion bei der subkutanen Tuberkulinprobe und ihre Bedeutung für die Frühdiagnose der Lungenspitzentuberkulose.) M. Otten.
113 Scopolamin. M. Cremer.
114 Torsion of the Great Omentum. (Ueber die Torsion des grossen Netzes.) E. Schümann.
115 Contradictory Findings with the Salomon and Hemolysin Tests for Diagnosis of Gastric Cancer. (Salomonsche Probe und Hämolysine im Magensaft und Magenkarzinom.) E. Fränkel.
116 Indications for Various Mercurial Preparations. F. Juliusberg.
117 Familial Occurrence of Tetany. Coler.
118 Staining Process for Fibrin. (Zur Theorie der Fibrinfärbung.) K. Lennhoff.

110. **Pseudo-putrid Processes in the Air Passages.**—Eichhorst reports a case in which a putrid empyema existed in the pleura but without perforation of pus into the air passages. The putrid odor of the breath and sputum and the changes found in the air passages at autopsy were evidently due solely to penetration of the putrid gases into the lungs and their action on the tissues. In two other similar cases the women succumbed to the progress of a putrid empyema in the pleura although the breath and sputum had never had a putrid odor, and no pathologic findings were encountered in the air passages or elsewhere.

112. **Importance of Focal Reaction to the Subcutaneous Tuberculin Test.**—Otten regards the reaction at the focus after administration of tuberculin as the most reliable means at our disposal for estimating the actual condition of the focus, whether it is active or in a latent or healed phase. Neither the local or general reaction with the subcutaneous test is decisive in this respect while the focal response gives illuminating findings. In 324 cases in which the subcutaneous tuberculin test was applied, 60.8 per cent. of the patients responded with both a focal and a general reaction; 7.4 per cent. with a focal reaction only; 23.5 per cent. with a general reaction only, and 8.3 per cent. with no reaction of either kind. The patients were those merely suspected of a tuberculous apical process in the lung in an incipient phase. In the 221 cases giving a focal reaction this consisted of development of dulness in 6 cases, exaggeration of previously existing dulness in 78; development of dulness and new râles in 3 while in 66 the existing dulness became more pronounced and râles were heard for the first time or became more pronounced in 10 cases. In 40 cases râles were heard for the first time while the dulness persisted unmodified, and in 9 the râles increased, the resonance persisting normal. Besides these findings the patients frequently complained of a vague or sharp pain in the region of the lung involved. In some cases a cough developed for the first time or the expectoration

increased or commenced for the first time. In 3 cases there were traces of blood in the sputum, observed for the first time. In only 3 of the total 324 cases were tubercle bacilli discovered for the first time in the sputum after the tuberculin test. The symptoms of the focal reaction lasted as a rule only 2 or 3 days, occasionally for 4 or 5. The patients were kept in the institution for a few days after subsidence of the reaction and no harm resulting from the test was ever discovered. Later examinations have also confirmed the precision of the focal findings as three-fifths of the patients showing traces of a focal reaction have grown worse in the interim, notwithstanding sanatorium treatment, while the condition has persisted unchanged in almost every one of the cases not displaying any evidence of a focal reaction, although none has had sanatorium treatment. The reaction at the point of injection of the tuberculin, the *Stichreaktion*, did not parallel the other findings in most cases and does not seem to have decisive diagnostic value.

Münchener medizinische Wochenschrift

July 5, LVII, No. 27, pp. 1425-1480

119 *Chlorosis. (Untersuchungen über Chlorose.) P. Morawitz.
120 Treatment of Syphilis with Ehrlich's "Substance 606." (Behandlung der Syphilis mit dem neuen Ehrlich-Hataschen Arsenpräparat No. 606.) E. Schreiber and J. Hoppe.
121 Bacteriologic Examination of the Blood. (Zur Methodik der kulturellen Blutuntersuchung.) W. Meyerstein and L. B. Rosenthal.
122 Influence of Senna on the Digestive Movements. (Einfluss des Sennainfuses auf die Verdauungsbewegungen beim Menschen.) E. Stierlin.
123 *Resection of Posterior Spinal Roots in Spastic Paralysis. (Ueber die Förstersche Operation.) A. Codivilla.
124 *Idem in Tabetic Crises. (Zur Behandlung tabischer Krisen mit Resektion der hinteren Würzeln.) H. Flörcken.
125 Chemical Theory for Action of Anesthetics. (Eine neue Theorie der Narkose.) K. Bürker.
126 Elimination of Radioactive Substances in the Urine. C. Ramsauer and A. Caan.
127 Radium in Treatment of Rheumatic Pains. J. Görner.
128 Formation of Beta-Oxybutyric Acid in the Animal Organism. (Bildung von Beta-Oxybuttersäure im tierischen Organismus.) H. D. Dakin (New York).
129 Drug Eruptions as Expression of Idiosyncrasy and Anaphylaxis. (Arzneiexantheme als Ausdruck von Idiosynkrasie und Anaphylaxie.) E. Klausner.
130 *Three Methods for Rapid Staining of Living Spirochetes. E. Meirowsky.
131 *Two Cases of a Tendency to Gangrene after Tincture-of-Iodin Sterilization of the Skin. W. Hindenberg.
132 *Action of Roentgen Rays on Tumors. (Wirkung von Röntgenstrahlen auf Geschwülste.) R. Werner and A. Caan. Commenced in No. 25.

119. **Chlorosis and Its Treatment.**—Morawitz protests against the assumption that chlorosis is essentially an anemia; in 28 girls with the classic clinical picture of chlorosis whom he has examined in the last six months, the proportion of hemoglobin was above 80 per cent. in nearly all, not below 60 in any, and frequently over 90 per cent. Notwithstanding this normal or nearly normal composition of the blood, the patients presented the typical symptoms of chlorosis and nearly all were cured by iron. He concludes from these and other experiences of the kind that the anemia is not the essential feature of chlorosis but only one among other symptoms. It is much more probable, he thinks, that defective or excessive functioning of the ovaries or some interrelated ductless gland is at the root of all the syndrome; the ovary alone cannot be responsible as ovarian organotherapy has not given encouraging results. Giudiceandrea has recently reported enlargement of the thyroid gland in fully 50 per cent. of his chlorotic patients examined. The fact that chlorosis develops exclusively during puberty is also suggestive in this line, as also that chlorosis may recur again and again in those who had it at puberty. Seiler found the hemoglobin percentage only 10 or 15 below normal in 51 cases of chlorosis, and all the symptoms disappeared under iron in 30 of the patients. He calls this condition "masked chlorosis;" among the 21 who were not cured by the iron were 12 girls with incipient apical tuberculosis. The iron evidently acts on the primary cause of the trouble; it is absurd to suppose, Morawitz declares, that the mere loss and recovery of such a minute hemoglobin percentage as the difference between 80 and 90 per cent., could elicit and banish the train of symptoms we call chlorosis.

123-124. **Resection of Posterior Spinal Roots in Treatment of Spastic Paralysis and Painful Crises in Tabes.**—Codivilla reports a severe case of spinal spastic paralysis in a well nourished girl of 15 in which a little benefit was derived from resection of the second sacral and fifth and third lumbar roots on the left and of the second sacral and fifth lumbar on the right. He is convinced that the improvement in this case might have been attained equally well with the ordinary orthopedic operations, tenotomy, etc. The results might have been better, he remarks, if more of the roots had been resected. There seems to be a tendency to atrophy of the muscles on the side on which most roots were resected. Flörcken reports complete success from resection of the seventh to tenth dorsal roots inclusive in a case of painful crises involving the spine and thorax, the syndrome like that of exceptionally severe trigeminal neuralgia. The whole syndrome was cured by cutting off the region from communication with the central nervous system by resection of the spinal roots involved. Flörcken ascribes to Abbe of New York and Bennet, in 1888, the first suggestions of resection of the spinal roots as a means of curing violent neuralgia. Chipault in 1895 endorsed their suggestion, and Munro reported in THE JOURNAL in 1904 two cases of laminectomy and division of the posterior roots, but Foerster and Küttner first applied the method on a systematically outlined plan.

130. **Simple Staining Technic for Living Spirochetes.**—Meirowsky mixes methyl violet with a few drops of physiologic salt solution and rubs the colored mixture vigorously into the ulcerated primary sore or condyloma. As serum oozes it is found to contain the spirochetes stained a bright violet. The depth of the stain depends on the concentration of the coloring mixture; it works best when it is of such strength that the lipoid envelop of the red corpuscles is a deep bluish violet tint. The refringens assumes a bluish violet tint, easily distinguished from the bright violet stain of the pallida.

131. **Gangrene after Iodin Sterilization of the Skin.**—Hindenburg reports two cases of an ax injury of the toes while splitting wood, in both of which he applied tincture of iodin according to the customary technic. When the dressings were changed two days later there were signs of commencing gangrene which he ascribes to penetration of the iodin into some gaping vessel entailing destruction of the vessel walls and consequent gangrene. The cases warn, he adds, against applying the tincture of iodin method to cutting wounds unless the cut surfaces are protected with gauze against the penetration of the tincture of iodin.

132. **Action of Roentgen Rays on Tumors.**—This communication relates the experiences with Roentgen-ray treatment of tumors at the Heidelberg Institute for Cancer Research in charge of Czerny. A favorable influence from the rays was undeniable but it is doubtful if they will ever prove reliable alone. The method fails sometimes in the apparently most propitious cases while again in others, apparently the least encouraging, surprising benefit may be realized. Operable tumors, it is reiterated, should always be removed but in the after-treatment the Roentgen rays may be usefully applied even in combination with fulguration or thermopenetration or other measures. When applied to an open wound, the Roentgen rays seem to act more effectually than when they have to pass through the skin. When an operation is impossible from any reason then the Roentgen rays should be applied as vigorously as possible, but not if there is a chance for operative measures later as in that case the overexposures might have an injurious influence on the healing of the wound. This applies also to cancers on the limit of operability; preliminary Roentgen exposures may render them more movable and much facilitate their removal, but in such cases Czerny is always careful not to expose the region enough to induce much eczema. In the absolutely inoperable cases Roentgen treatment should be given a trial in every case, it is stated, as surprises in a favorable direction are always possible. But if only an aggravation follows the first set of exposures (5 or 6 H units over every point of the surface), it is useless to continue the exposures as when this was observed further exposures had no favorable influence in such cases. Especially unfavorable experiences in this direction were encountered with carcinomas of the mouth, tongue

and parotid region. Apparent success at first is not always a precursor of a definite cure; the melanosarcomas were most disappointing in this respect, and certain cases of lymphosarcomas. After surprising retrogression of the tumors at first, they then entered a phase in which they ceased to be influenced by further exposures. The aim in Roentgen treatment is not to induce necrosis of the cancer but merely an elective injurious influence on the pathologic cells, destroying their vitality and leaving them in a form permitting their absorption, while at the same time the rays have a stimulating action on the neighboring tissues, starting proliferation in them. Unless the adjacent tissues are able to absorb the destroyed tumor cells, their destruction does no good. One great difficulty with Roentgen treatment of cancer, it was found, is that the different elements of the lesion possess a varying susceptibility to the rays; this difference may be striking even from cell to cell. Homogeneous radiosensibility of the cancer, surpassing that of adjoining tissues, is the *sine qua non* of success.

Wiener klinische Wochenschrift, Vienna

July 7, XXIII, No. 27, pp. 991-1024

133 Etiology of Suppurative Follicular Enteritis. H. Albrecht.
134 Edema after Operation for Stenosis of the Pylorus: Three Cases. A. Jianu.
135 Tonsillectomy. (Ueber die Radikaloperation der Tonsille.) S. Tenzer.
136 Spiral Test of Cutaneous Sensibility. (Eine Spiralprüfungsmethode mit dem Pinsel zur Abgrenzung berührungsanästhetische und berührungshypästhetischer Hautstellen.) M. Löwy.
137 Spinal Anesthesia by Jonnesco's Technic in 50 Cases. (Ueber die Medullaranästhesie nach Jonescu.) P. de Favento.
138 Historical Sketch of Hemostatic Measures. (Zur Geschichte der Blutstillung im Altertum und Mittelalter.) E. F. Heeger.

Zentralblatt für Chirurgie, Leipsic

July 9, XXXVII, No. 28, pp. 929-952

139 Inflammation of the Scaphoid Bone Generally Entailing Fracture. (Eine typische posttraumatische und meist zur Spontanfraktur führende Ostitis navicularis carpi.) G. Preiser.

Zentralblatt für Gynäkologie, Leipsic

July 9, XXXIV, No. 28, pp. 929-976

140 Treatment of Placenta Prævia. W. Sigwart.
141 Technic of Rhachiotomy. (Verschleppte Querlage—Küstner's Rhachiotom.) H. Küster.
142 *Childbirth after Suprasymphyseal Delivery. (Ueber Geburten nach suprasymphysärer Entbindung.) K. Hartmann.
143 *Perineotomy. (Wo ist vortellhaft die Episiotomie zwecks Erhaltung der integrierenden Dammgebilde anzulegen?) A. Markowsky.
144 Decapsulation of the Kidney in Eclampsia. S. Cholmogoroff.
145 *Carcinoma in the Stump of the Cervix after Chrobak's Myoma Operation. H. Hinterstoisser.
146 Vicarious Menstruation Through Laparotomy Fistulas. E. Bircher.

142. **Births after Suprasymphyseal Delivery.**—Hartmann has previously reported 8 childbirths in women delivered by suprasymphyseal section and here reports 4 more cases. No mishaps were encountered in any case for which the previous operation was in any way responsible.

143. **Perineotomy.**—Markowsky states that v. Ott has made a practice of prophylactic section of the perineum since 1895 and now has a record of over 364 cases and is preparing a detailed and laudatory report on the method for the approaching gynecologic congress in St. Petersburg next September. He claims that the perineum is protected best by systematic incision.

145. **Cancer in the Stump of the Cervix.**—Hinterstoisser has had carcinoma develop in the stump of the cervix in two cases after the Chrobak supravaginal amputation of the cervix for myoma. This makes ten cases on record of this contingency but he declares that this percentage is too small to detract from the value of the Chrobak technic, although it imposes the necessity for regular and frequent examination of the woman afterward.

Zentralblatt für innere Medizin, Leipsic

July 9, XXXI, No. 28, pp. 697-720

147 Treatment of Serum Sickness. J. C. Schippers and J. M. Wentzel.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 3, XXXI, No. 79, pp. 826-840

148 Heart Disease and Tetany. (Cardiopatia e tetania.) M. Gioseffi.

July 5, No. 80, pp. 841-848

149 Advantages of Wire to Hold Fractured Femur. (Il cerclage nelle fratture della diafisi femorale.) L. Vercelli.

July 7, No. 81, pp. 849-856

150 *The Albumin Reaction in Tuberculous Sputum. (L'albuminoreazione—prova del Roger—nell' espettorato tubercolare.) A. Trona.

150. **The Albumin Reaction in the Sputum.**—Trona applied Roger's technic in 44 tuberculous cases and 35 of various other affections and obtained positive findings only in the tuberculous cases and in 9 with heart disease and albuminuria. The sputum is mixed with salt solution and a few drops of acetic acid are added to precipitate the mucin. The whole is then stirred and filtered. The filtrate is then boiled or treated with trichloracetic acid to reveal the presence of albumin. The albumin indicates that the sputum is not a mere superficial secretion but comes from some deep-seated inflammatory process.

Policlinico, Rome

July 17, XVII, No. 29, pp. 899-930

151 *Hemostasis by Inflated Tubing. (Sopra un nuovo metodo d'emostasi e sulla prolungata ischemia senza conseguenza per l'integrita dei tessuti e della loro funzione.) E. Pomponi.

151. **Hemostasis by Inflating Tubing.**—Pomponi uses a rubber tube 2 or 3 cm. (1¼ inches) in diameter, the ends held with forceps. Air is slowly pumped into the tube and by this means compression is exerted sufficient to arrest pulsation below without injury of the tissues, even when the compression is kept up for hours. He uses this contrivance for the Momburg belt constriction and states that the disturbances were slight and transient even after six or seven hours' application in his experiments.

Riforma Medica, Naples

June 27, XXVI, No. 26, pp. 701-722

152 Quantitative Formol Test for Nitrogen in Stomach Content and its Diagnostic Importance. (Azoto titolabile col formolo nel contenuto gastrico e suo valore diagnostico.) A. Barlocco.
153 Treatment of Total Prolapse of the Rectum. (La cura del prolasso totale del retto.) P. Lilla.
154 Diagnosis of Hernia of the Bladder. (Per la diagnosi dell'ernia della vescica.) A. Arcangeli.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

NEPHROCOLOPTOSIS. A Description of the Nephrocolic Ligament and Its Action in the Causation of Nephroptosis, with the Technic of the Operation of Nephrocolopexy, in Which the Nephrocolic Ligament is Utilized to Immobilize Both Kidney and Bowel. By H. W. Longyear, M.D., Professor of Gynecology and Abdominal Surgery, Detroit Post-Graduate Medical School. Cloth. Price, $4. Pp. 251, with 86 illustrations. St. Louis: C. V. Mosby Company. 1910.

COMMERCIAL RELATIONS OF THE UNITED STATES WITH FOREIGN COUNTRIES DURING THE YEAR 1908. In Two Volumes. Vol. I. Europe. Pp. 592. Vol. II. North and South America, Asia, Oceania and Africa. Pp. 853. Cloth. Washington: Government Printing Office, Supt. of Documents, 1909.

ST. LOUIS: ITS HISTORY AND IDEALS. Prepared for the Sixty-first Annual Session of the American Medical Association, June 7-10, 1910. By Philip Skrainka, M.D., Metropolitan Building, St. Louis. Cloth. Price, 75 cents. Pp. 172, with illustrations. 1910.

THE REPORT OF THE DIRECTOR OF THE INTERNATIONAL BUREAU OF THE AMERICAN REPUBLICS TO THE FOURTH PAN-AMERICAN CONFERENCE. Held at Buenos Aires, Argentine Republic. July, 1910. Washington, D. C. Paper. Pp. 120, with illustrations.

TRANSACTIONS OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION. Forty-third Annual Session, held at Oxford, April 12-14, 1910. Roll of Members, Constitution and By-Laws, and Code of Ethics. [Secretary, E. F. Howard, Vicksburg.]. Cloth. Pp. 256.

TRANSACTIONS OF THE INTERNATIONAL MEDICAL ASSOCIATION OF MEXICO. Fifth Annual Session, held at Aguas Calientes, Agts., Jan. 25, 26 and 27, 1910. [Secretary, Dr. J. S. Steele, Monterey, N. L., Mexico.] Paper. Pp. 108, with illustrations.

SYPHILIS: ITS DIAGNOSIS, PROGNOSIS, PREVENTION AND TREATMENT. By Thomas P. Beddoes, F.R.C.S., Surgeon to the London Hospital for Diseases of the Skin. Cloth. Price, $2 net. Pp. 224. New York: Paul B. Hoeber, 1910.

WHAT THE MAYOR AND CITY COUNCIL CAN DO IN THE PREVENTION OF TYPHOID FEVER. By L. L. Lumsden, Passed Assistant Surgeon, U. S. P. H. and M.-H. Service. Paper. Pp. 11. Washington: Government Printing Office, 1910.

TWENTY-SEVENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF INDIANA. For the Fiscal Year Ending Sept. 30, 1908. Statistical Year Ending Dec. 31, 1908. To the Governor. Cloth. Pp. 782.